Rec'd 8-22-13 /KM

TOWN OF ELIOT
INCORPORATED 1810
1333 STATE ROAD
ELIOT, MAINE 03903
439-1813

August 22, 2013

Bob Perciasepe, Acting Administrator
United States Environmental Protection Agency
Office of the Administrator
401 M Street, SW
Room 1200 WT\1101
Washington, DC 20460

Curt Spalding
United States Environmental Protection Agency
Region 1 - New England
5 Post Office Square
Mail Code: ORA
Boston, MA 02109-3912

Dear Acting Administrator Perciasepe and Regional Administrator Spalding:

On behalf of the Town of Eliot, Maine, the undersigned Eliot Board of Selectmen encloses a petition pursuant to section 126 of the Clean Air Act, 42 U.S.C. § 7426, seeking a finding that emissions from the coal-fired Schiller Station ("the Schiller Plant" or "the Plant") in Portsmouth, New Hampshire, are causing and significantly contributing to nonattainment of the 1-hour sulfur dioxide ("SO_2") primary National Ambient Air Quality Standard ("NAAQS") in the town of Eliot, Maine. Eliot also requests that, pursuant to section 126, the United States Environmental Protection Agency ("EPA") order the plant to discontinue such emissions.

To meet its attainment requirements for previous SO_2 NAAQS, the state of Maine has adopted a State Implementation Plan ("SIP"), a component of which effectively controls SO_2 emissions from sources within the town of Eliot, Maine. *See, e.g.*, 06-096-106 ME. CODE R. § 2(B). However, Eliot's ability to attain and maintain the 1-hour SO_2 NAAQS, promulgated by EPA on June 3, 2010, is prevented by the emissions from the Schiller Plant's coal-fired generating units. The stacks venting these emissions are located in Portsmouth, New Hampshire, on the Piscataqua River, right across the border from Eliot, Maine. The Plant, which began operating in 1949, has no SO_2 emission controls, allowing it to emit high levels of SO_2, causing and contributing to NAAQS exceedences in Eliot, Maine, particularly in South Eliot, but also throughout southern Maine, where Eliot residents travel, work, and recreate.

AERMOD modeling analyses demonstrate exceedences of the SO_2 NAAQS in the town of Eliot, Maine. Therefore, according to sections 110 and 126 of the Clean Air Act, the EPA should regulate the Schiller Plant to mitigate the significant impact of its emissions on the town

of Eliot, Maine by requiring reductions in SO_2 emissions at the Schiller Plant sufficient to remedy the Plant's significant contribution to the nonattainment and interference in maintenance of the SO_2 NAAQS. *See* 42 U.S.C. §§ 7410, 7426. It is critical that EPA address the impact of the Plant's emissions on the Town of Eliot's and southern Maine's ability to attain and maintain the SO_2 NAAQS, considering the severe health impacts of this pollutant. Further, any remedy chosen by EPA must ultimately lead to an actual reduction of emissions from the Schiller Plant sufficient to eliminate the facility's interference with Eliot, Maine's ability to attain the NAAQS.

Section 126(b) requires the Administrator to make a finding or deny a petition within 60 days of receipt of the petition and after a public hearing. The Town of Eliot, Maine respectfully requests that any public process related to this petition be held in Eliot. The citizens of Eliot, Maine who are being harmed by the emissions from the Schiller Plant should be accommodated and afforded every opportunity to participate in the associated public process.

I welcome the opportunity to discuss this matter with you. I can be contacted at 207-439-1813.

Sincerely,

Michael T. Moynahan
Chairman, Board of Selectmen
Eliot, Maine

Petition Pursuant to Section 126 of the Clean Air Act to the United States Environmental Protection Agency for Abatement of Emissions from Schiller Station in Portsmouth, New Hampshire that Directly Cause or Significantly Contribute to Nonattainment of the One-Hour SO_2 National Ambient Air Quality Standard in the Town of Eliot, Maine

The Town of Eliot, Maine, through the Board of Selectmen of the town of Eliot, Maine, hereby petitions the United States Environmental Protection Agency ("EPA") pursuant to section 126(b) of the Clean Air Act ("CAA" or "the Act"), 42 U.S.C. § 7426(b), to abate the unlawful transport of emissions from the coal-fired Schiller Station ("the Schiller Plant" or "the Plant") to Eliot, Maine. The Schiller Plant, located in Portsmouth, New Hampshire just across the border from Eliot, Maine, causes and significantly contributes to exceedences of the 1-hour sulfur dioxide National Ambient Air Quality Standard ("SO_2 NAAQS") in large swaths of southern Maine, and in particular in the town of Eliot. Specifically, AERMOD modeling analysis predicts that the Schiller Plant's pollution directly causes and significantly contributes to nonattainment of the SO_2 NAAQS in much of York County, Maine, including the towns of Eliot, Kittery, and York. Indeed, modeling shows that at currently-permitted emission levels, Schiller Plant alone is solely responsible for concentrations of SO_2 *double* the NAAQS in parts of Eliot.

As the Schiller Plant is physically located in the state of New Hampshire, the Town of Eliot, Maine is without recourse to itself directly address the sulfur pollution the facility emits, and so hereby petitions EPA for a finding pursuant to section 126 of the Clean Air Act ("CAA" or "the Act") that the Schiller Plant is directly causing and significantly contributing to nonattainment of the SO_2 NAAQS in Eliot, Maine. The Eliot Board of Selectmen further seeks an order from EPA directing the operators of the Schiller Plant to reduce SO_2 emissions such that the Plant is no longer causing or significantly contributing to nonattainment of the NAAQS in the town of Eliot, Maine. Such reductions must occur as expeditiously as practicable but in no event later than the maximum timeframe of three years permitted by section 126 of the Act, 42 U.S.C. § 7426.

I. Factual and Legal Background

A. The Schiller Plant and its Impact on the Town of Eliot, Maine.

The Schiller Plant is a nominal 150 megawatt coal-fired power plant which began operation in 1949, with its current boilers coming online between 1952 and 1957. Although one of the three main boilers now combusts biomass, the other two continue to burn coal. The Plant is located on the banks of the Piscataqua River in Portsmouth, New Hampshire, directly across the border from the town of Eliot, Maine. *See* Exhibit 1 (picture of Schiller Station). The Plant's operation is currently governed by the New Hampshire's State Implementation Plan ("SIP") and a Title V Permit issued by the New Hampshire Department of Environmental Services ("DES"), pursuant to EPA's delegation of CAA enforcement.

The Schiller Plant currently has no pollution controls in place to limit the release of SO_2. As a result, the Plant emits extremely high levels of SO_2,[1] which reach Eliot, Maine and cause and significantly contribute to nonattainment of the one-hour SO_2 NAAQS. 42 U.S.C. § 7426(b). More specifically, as discussed further below, modeling attached hereto demonstrates that the Schiller Plant's emissions are causing a significant violation of the SO_2 NAAQS in Eliot. *See* Steven Klafka, *Schiller Station Evaluation of Compliance with the 1-Hour SO_2 NAAQS* (2012) (hereinafter "Schiller Modeling Report"), attached hereto as Exhibit 2.

B. Maine's Efforts to Control SO_2 Air Pollution.

The State of Maine is regulating its air pollution sources to meet its attainment obligations and the Act's interstate transport provisions. EPA has approved, as part of Maine's

[1] In 2010 alone, the Schiller Plant emitted approximately 3256 tons of SO_2. *See* Envtl. Prot. Agency, *Clean Air Markets Database*, http://ampd.epa.gov/ampd/. Similarly, Schiller emitted over 1,700 tons of SO_2 in 2012, and almost a thousand tons in the first half of 2013 alone. *Id.* The Schiller Plant accordingly meets the definition of a "major source" under the Clean Air Act. *See* 42 U.S.C. § 7602(j) (defining the terms "major stationary source" and "major emitting facility" to mean "any stationary facility or source . . . which directly emits, or has the potential to emit, one hundred tons per year or more of any air pollutant . . . .").

SIP, regulations promulgated by the state for the control of sulfur dioxide, including limitations on the sulfur content of coal. *See* 06-096-106 ME. CODE R. § 2(B) (2011).[2]

Air pollution, in general, is an issue of significant concern in the state of Maine, which ranks seventh in the U.S. for adults who currently suffer from asthma. *See* CDC Behavioral Risk Factor Surveillance System, *Prevalence and Trends Data: Adults who have been told they currently have asthma, All U.S. States and Territories* (2010), attached hereto as Exhibit 3. The town of Eliot, Maine, which, as discussed further below, is the site of some of the highest SO_2 concentrations calculated by the AERMOD modeling of the Schiller Plant's emissions, reported lifetime asthma prevalence rates among adults in York County at 14.8%, and current asthma prevalence rates among adults, at 9.7%. *See id.* Asthma rates in York County are higher in children, with 16.2% of 5th and 6th graders reporting a doctor had told them they have asthma in 2009. *See* Maine Department of Health and Human Services, *Asthma York District* (2009), attached hereto as Exhibit 4.

[IF DESIRED, THE TOWN CAN INSERT ANY RELEVANT DISCUSSION OF ELIOT'S PAST EXPERIENCES WITH SCHILLER AND ACCOMPANYING HEALTH ISSUES]

C. EPA's Regulation of SO_2.

EPA has determined that exposure to SO_2 in time periods as short as five minutes causes decrements in lung function, aggravation of asthma, and respiratory and cardiovascular morbidity. *See* Envtl. Prot. Agency, EPA/600/R-08/047F, *Integrated Science Assessment for Sulfur Oxides—Health Criteria* ch. 5 tbls. 5-1, 5-2 (2008), *available at* http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=491274; Primary National Ambient Air Quality Standard for Sulfur Dioxide Final Rule, 75 Fed. Reg. 35,520, 35,525 (June 22, 2010) (hereinafter "Final Rule"); *see also* Envtl. Prot. Agency, *Our Nation's Air: Status and Trends Through 2008* 4 (2010) (noting that the health effects of sulfur dioxide exposure include

[2] In 1991, Maine amended its limitations on fuel sulfur content, however, these amendments have not yet been adopted into the federally-approved SIP. Under the current SIP, approved by EPA in 1982, the sulfur content of any fuel must be less than or equal to 2.5% by weight. *See* 47 Fed. Reg. 947 (1982); 40 C.F.R. § 52.1030-52.1031 (2012).

aggravation of asthma and chest tightness), *available at* http://www.epa.gov/airtrends/2010/report/fullreport.pdf. SO_2 exposure can also aggravate existing heart disease, leading to increased hospitalizations and premature deaths. *Sulfur Dioxide*, Envtl. Prot. Agency http://www.epa.gov/oaqps001/sulfurdioxide/health.html. SO_2 also interacts with oxides of nitrogen ("NOx") in the atmosphere with water and oxygen to form nitric and sulfuric acids, commonly known as acid rain. Envtl. Prot. Agency, *Our Nation's Air: Status and Trends Through 2008* 3 (2010). Children with asthma are especially at risk for adverse health effects from short-term SO_2 exposure. *See* Final Rule, 75 Fed. Reg. at 35,525. According to EPA, fossil fuel combustion at electric utilities contributes the majority of anthropogenic SO_2 emissions. Envtl. Prot. Agency, *Our Nations Air: Status and Trends Through 2008* 6 fig. 2 (2010).

The Act requires EPA to promulgate NAAQS for SO_2 and other pollutants to protect the public health and welfare from the adverse effects of air pollutants. 42 U.S.C. § 7409. After promulgating a NAAQS standard, EPA and other stakeholders then engage in a process of designating areas of the nation as attainment, nonattainment, or unclassifiable with respect to the NAAQS. 42 U.S.C. § 7407(c)-(d). States must submit for approval by EPA State Implementation Plans ("SIPs") for implementing, maintaining, and enforcing the NAAQS. *Id.* at § 7410.

EPA first set the SO_2 NAAQS in 1971, establishing the primary annual SO_2 NAAQS at 0.03 ppm (80 micrograms per cubic meter ($\mu g/m^3$), primary 24-hour SO_2 NAAQS at 365 $\mu g/m^3$ (140 parts per billion (ppb)), and secondary 3-hour SO_2 NAAQS at 1300 $\mu g/m^3$ (500 ppb). 36 Fed. Reg. 8,186 (April 30, 1971). Under Section 109 of the Act, national primary ambient air quality standards are standards requisite to protect the public health, allowing an adequate margin of safety. 42 U.S.C. § 7409(b). Recognizing that the prior 24-hour and annual SO_2 standards did not adequately protect the public against adverse respiratory effects associated with short term (5 minutes to 24 hours) SO_2 exposure, EPA revoked the annual and 24-hour NAAQS on June 3, 2010 (keeping the prior standards in place for one year). In doing so, EPA set a new

1-hour standard at 196 micrograms per cubic meter (75 ppb). 40 C.F.R. § 50.17(a). The new standard was established in the form of the 99th percentile of the annual distribution of the daily maximum 1-hour average concentrations. *Id.* § 50.17(b).

The new 1-hour SO_2 NAAQS is more stringent than the prior SO_2 NAAQS, considering both the shorter averaging time and the numerical difference. In the final rule, EPA further recognized the "strong source-oriented nature of SO_2 ambient impacts." Final Rule, 75 Fed. Reg. at 35,370. EPA estimated that this new 1-hour SO_2 standard would prevent 2,300-5,900 premature deaths and 54,000 asthma attacks a year. Envtl. Prot. Agency, *Final Regulatory Impact Analysis (RIA) for the SO_2 National Ambient Air Quality Standards (NAAQS)*, tbl. 5.14 (2010), *available at* http://www.epa.gov/ttnecas1/regdata/RIAs/fso2ria100602full.pdf.

In addition, EPA has determined that modeling is an appropriate methodology for determining attainment, nonattainment, and compliance with the new NAAQS. *See* Final Rule, 75 Fed. Reg. at 35,551 (describing dispersion modeling as "the most technically appropriate, efficient, and readily available method for assessing short-term ambient SO_2 concentrations in areas with large point sources."). Conversely, EPA described monitoring as being "less appropriate, more expensive, and slower to establish," and noted that "even if monitoring does not show a violation," that absence of data is not determinative of attainment status absent modeling. *Id.* Accordingly, in promulgating the new SO_2 NAAQS, EPA explained that, for the 1-hour standard, "it is more appropriate and efficient to principally use modeling to assess compliance for medium to larger sources . . . ." *Id.* at 35,570.

E. The Clean Air Act and Cross-Boundary Air Pollution.

Section 110(a)(2)(D)(i)(I) requires that a SIP contain adequate provisions prohibiting "any source" of emissions from emitting an air pollutant in amounts which will "contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to [a] national primary or secondary ambient air quality standard." *Id.* at § 7410(a)(2)(D)(i)(I). The Act permits a state to petition the EPA Administrator for a finding that a stationary source in

another state emits or would emit an air pollutant in violation of section 110(a)(2)(D)(i)(I) of the Act. 42 U.S.C. § 7426(b). More specifically, section 126 provides that

> Any State **or political subdivision** may petition the Administrator for a finding that any major source or group of stationary sources emits or would emit any air pollutant in violation of the prohibition of section 7410(a)(2)(D)(ii) of this title or this section. Within 60 days after receipt of any petition under this subsection and after public hearing, the Administrator shall make such a finding or deny the petition.

Id. (emphasis added)[3]

The section 126 petition process operates independently of the SIP promulgation process. *GenOn Rema, LLC v. EPA*, --- F.3d --- (3rd Cir. 2013), 2013 WL 348146 at *7 ("Congress intended Section 126(b) as a means for the EPA to take immediate action when downwind states are affected by air pollution from upwind states"); *see also* Response to Petition From New Jersey Regarding SO_2 Emissions From the Portland Generating Station, 76 Fed. Reg. 19,662, 19,665 (Apr. 7, 2011) (proposing that EPA grant New Jersey's petition under section 126 of the Act to abate NAAQS violations from a Pennsylvania coal-fired power plant). Section 126 establishes clear deadlines for action by the Administrator in response to a petition under that section. 42 U.S.C. § 7426. The Administrator must make the requested finding or deny the petition within 60 days after receipt of the petition, and after a public hearing. 42 U.S.C. § 7426(b). Once EPA makes a finding under section 126(b), section 126(c) requires that the violating source shall not operate three months after the finding regardless of whether the source has been operating under a duly issued state operating permit. 42 U.S.C. § 7426(c).

The Administrator may allow the source to operate beyond such time only if the source complies with emission limitations and compliance schedules (containing increments of progress) as the Administrator may direct to bring about compliance.[4] *Id.* Such compliance

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[3] Section 126(b) contains a circular reference determined to be a "scrivener's error." The text should refer to section 110(a)(2)(D)(i), not section 110(a)(2)(D)(ii). *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1041-44 (D.C. Cir. 2001).

[4] The term "emission limitation" means a requirement established by the state or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation of maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under the Act. 42 U.S.C. § 7602(k). The term

must be brought about "as expeditiously as practicable," and in no case later than three years after the date of the Administrator's finding. *Id.*

F. The Portland 126 Petition

EPA recently evaluated and granted a petition pursuant to Section 126 of the Clean Air Act concerning SO_2 pollution from the Portland plant in Pennsylvania that flowed into New Jersey. U.S. EPA, Final Response to Petition from New Jersey Regarding SO_2 Emissions from the Portland Generating Station, 76 Fed. Reg. 69,052 (Nov. 7, 2011) ("Portland Rule"). In September of 2010, New Jersey filed a 126 petition with EPA, requesting that it find that SO_2 emissions "from the nearby Portland plant significantly contribute to nonattainment and/or interfere with maintenance of the 1-hour SO_2 NAAQS in New Jersey." *GenOn Rema, LLC v. EPA*, --- F.3d --- (3rd Cir. 2013), 2013 WL 348146 at *3. New Jersey submitted "air quality and aerial dispersion modeling analyses to show that emissions from Portland cause violations" of the NAAQS in widespread portions of New Jersey, in support of its petition. *Id.*

This modeling consisted of an evaluation of the permitted SO_2 emissions from the Portland facility, using the AERMOD modeling application. *Id.*; U.S. Portland Rule, 76 Fed. Reg. at 69,053. This modeling determined that Portland was, by itself, responsible for nonattainment and interference with maintenance of the NAAQS in New Jersey. Accordingly, EPA determined that "the AERMOD analysis, submitted by NJDEP and modeled by the EPA, provides a reasonable basis for making a finding that emissions from Portland significantly contribute to nonattainment and interfere with maintenance in New Jersey and for quantifying the SO_2 emissions reductions needed to establish the final remedy emission limits." Portland Rule, 76 Fed. Reg. at 69,063. Based on this finding, EPA required Portland to reduce its

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"compliance schedule" means a schedule of required measures including an enforceable sequence of actions or operations leading to compliance with an emission limitation, other limitation, prohibition, or standard. 42 U.S.C. § 7602(p).

permitted emissions of SO_2 by roughly 81%, so as to resolve the cross-border pollution. *Id.* at 69,066.

GenOn Rema, LLC,[5] operator of the Portland plant, challenged EPA's determination and emission reduction requirements before the Third Circuit Court of Appeals, arguing, in part, that EPA could not address a petition pursuant to Section 126 until the state housing the plant—here, Pennsylvania—had exhausted its process for internally controlling SO_2 pollution in response to the new 2010 NAAQS. *GenOn Rema, LLC v. EPA*, --- F.3d --- (3rd Cir. 2013), 2013 WL 348146 at *4. The Third Circuit rejected this argument, however, observing that "Section 126(b) contains no temporal limitation on a state's right to petition the EPA" and that the Section "obligates the EPA to grant or deny a Section 126(b) petition within 60 days . . . and after a public hearing." *Id.* at *5 (internal citations omitted). Further, the Court noted that "EPA thoroughly examined the relevant scientific data," including the "dispersion modeling results that New Jersey submitted" as well as "its own modeling results" and "carefully calculated the emissions reductions that were needed to eliminate Portland's contribution to nonattainment in New Jersey" in promulgating its finding. *Id.* at *11. As such, the Court upheld EPA's finding and the emission reduction requirements. *Id.* at *12.

G. New Hampshire's Failure to Address Schiller's Impacts on Maine

Schiller Station is located in Portsmouth, New Hampshire, and thus its emissions—including its emissions of SO_2—are, as indicated above, regulated by New Hampshire Department of Environmental Services ("DES"). However, DES has repeatedly indicated unwillingness to set SO_2 emission limits for Schiller sufficient to ensure that air quality in Maine is protected.

In October of 2012, DES modified the emission limits governing Schiller, altering them from 2.9 pounds of SO_2 to million British thermal units of heat ("MMBtu") to 2.4 pounds per

[5] Now NRG.

MMBtu, as evaluated on a 24-hour average. Schiller Station Temporary Permit at 5, attached hereto as Exhibit 5. At the time, comments submitted to DES argued that these limits, as demonstrated by AERMOD modeling, were completely insufficient to protect air quality within Maine, and that DES should use modeling to determine and set adequate limits. DES declined to do so, however stating that it would "not require stationary sources to demonstrate modeled compliance with the updated NAAQS." Findings of Fact and Director's Decision, In the Matter of the Issuance of a Temporary Permit To Public Service Company of New Hampshire - Schiller Station (October 30, 2012) at 3, attached hereto as Exhibit 6. Instead, DES suggested that issues with Schiller's SO_2 pollution and the 2010 NAAQS might be addressed later as "as part of [New Hampshire's] State Implementation Plan requirements for the implementation of this new standard." *Id.* at 4.

However, when DES recently prepared its draft State Implementation Plan ("SIP") setting forth how it would attain and maintain the 2010 SO_2 NAAQS, including how it would address SO_2 emissions from Schiller, this SIP contained no new provisions limiting emissions from Schiller at all. *See* New Hampshire Draft State Implementation Plan (April 22, 2013), *available at* http://des.nh.gov/organization/divisions/air/do/sip/ documents/so2-infra-sip-2010.pdf. Instead, the draft SIP pointed to already-existing statutes concerning solid waste combustion and the general but undefined "need for substantial reductions in emissions" from power plants, but did not identify any new regulations setting emission limits in light of the SO_2 NAAQS. *Id.* at 4-5. Likewise, regarding interstate transport of pollution, such as that of SO_2 flowing from Schiller into Maine, DES's draft SIP pointed to existing regulations concerning the Prevention of Significant Deterioration (dealing with new sources of pollution or major modifications to existing sources) and Regional Haze (dealing with atmospheric visibility); neither of these sets of regulations address Schiller's SO_2 emissions with respect to the 2010 SO_2 NAAQS. *Id.* at 6-7. Thus, New Hampshire has taken no steps to address Schiller's SO_2 impacts on Eliot, or on the wider southern Maine region.

II. The EPA Should Issue a Finding that the Schiller Plant's SO_2 Pollution is Causing or Significantly Contributing to Nonattainment of the SO_2 NAAQS in the Town of Eliot, Maine and Direct the Plant's Operators to Either Reduce Emissions or Cease Operations

The Town of Eliot, Maine petitions EPA under section 126 of the Act to find that SO_2 emissions from the Schiller Plant cause and contribute to nonattainment and interference with maintenance of the SO_2 NAAQS. Further, the Town of Eliot requests that EPA order the Plant to reduce its SO_2 emissions sufficiently such that the Plant no longer causes or contributes to exceedences of the NAAQS in the town of Eliot, Maine and in southern Maine.

A. Modeling Demonstrates that the Schiller Plant's Emissions Cause and Significantly Contribute to Nonattainment of the SO_2 NAAQS in the Town of Eliot, Maine

As discussed above, EPA has established a primary SO_2 NAAQS standard of 75 parts per billion, or 196 micrograms per cubic meter. 40 C.F.R. § 50.17(a). EPA has specifically stated that air dispersion modeling is "the most technically appropriate, efficient, and readily available method for assessing short-term ambient SO_2 concentrations in areas with large point sources," and that for the 1-hour SO_2 standard, "it is more appropriate and efficient to principally use modeling to assess compliance for medium to larger sources . . . ." Final Rule, 75 Fed. Reg. at 35,551, 35,570.

In this case, AERMOD dispersion modeling of the SO_2 emissions from the Schiller Plant was conducted to ascertain the impact of the facility's operation on the air quality of the town of Eliot, Maine. Modeling was performed using the most recent version of the American Meteorological Society/Environmental Protection Agency Regulatory Model ("AERMOD") dispersion modeling software, and performed in accordance with the March 24, 2011 guidance provided by EPA for designating areas as in attainment or nonattainment with the SO_2 NAAQS. *See* Schiller Modeling Report;[6] *see also* March 2011 Guidance; 40 C.F.R. § 51 app. W. EPA has stated that AERMOD employs the best state-of-practice parameterizations for characterizing

[6] For a detailed discussion of the precise methodology and inputs used to generate the modeling, please see Schiller Modeling Report at §§ 3-4.

meteorological influences and dispersion. *Id.* Furthermore, AERMOD is EPA's "preferred near-field dispersion modeling for a wide range of regulatory applications in all types of terrain based on extensive developmental and performance evaluation." March 2011 Guidance at 3.

The AERMOD modeling conducted shows that Schiller's emissions have a significant adverse impact on the town of Eliot, Maine's air quality, and its ability to attain and maintain the SO_2 NAAQS. *See* Schiller Modeling Report at 4-5, Figures 3 and 4. Ultimately, modeling shows that Schiller—taken alone and with consideration of background levels of SO_2—is predicted to cause peak impacts of *nearly triple* the NAAQS. *See id.*; *see also* Steven Klafka, *Schiller Station Evaluation of Compliance with the 1-Hour SO_2 NAAQS* (2013) ("Schiller Modeling Supplement") attached hereto as Exhibit 7 (showing peak modeled concentrations in Eliot, Maine).

Table 1: Peak Ambient Air Impacts from Schiller Allowable Emissions
(*see* Schiller Modeling Report at 4)

Jurisdiction	Schiller's H4H Conc. ($\mu g/m^3$)	Background H4H Conc. ($\mu g/m^3$)	Total H4H Conc. ($\mu g/m^3$)	1-Hr SO_2 NAAQS ($\mu g/m^3$)
Maine	652.5	10.5	553.0	196.2
New Hampshire	459.5	130.8	492.3	196.2

Table 2: Peak Ambient Air Impacts from Schiller Maximum Emissions
(*see* Schiller Modeling Report at 4)

Jurisdiction	Schiller's H4H Conc. ($\mu g/m^3$)	Background H4H Conc. ($\mu g/m^3$)	Total H4H Conc. ($\mu g/m^3$)	1-Hr SO_2 NAAQS ($\mu g/m^3$)
Maine	444.8	10.5	455.3	196.2
New Hampshire	316.9	130.8	447.7	196.2

More specifically, the modeling shows that the emissions of the Schiller Plant as currently permitted result in significant violations of the current SO_2 NAAQS in portions of the town of Eliot, Maine. In fact, in the town of Eliot and elsewhere, the model shows Schiller's

emissions causing average 99th percentile SO_2 concentrations well over the NAAQS across a wide area, in both Maine and New Hampshire. *See id.*, Figures 3 and 4.

Supplemental modeling analyses provide additional support. AERMOD modeling using as an input not just Schiller's permitted emission rates but also historical hourly emission rates of SO_2 by the facility, as reported to and recorded by EPA, demonstrates that the plant causes significant exceedences of the SO_2 NAAQS in southern Maine and in Eliot. *See* Schiller Modeling Supplement at 4, Attachment A. Even during recent periods of low capacity factors for its coal-fired, SO_2-emitting boilers, Schiller Station is thus either solely or overwhelmingly responsible for ambient concentrations of SO_2 in Eliot and southern Maine that cause nonattainment and interference with maintenance of the NAAQS. *Id.*[7]

B. EPA Should Grant the Eliot Board of Selectmen's Section 126 Petition and Order the Schiller Plant to Reduce Its Emissions to Levels Sufficient to Resolve NAAQS Attainment and Maintenance Issues in the Town of Eliot, Maine.

As discussed above, section 126 provides the Town of Eliot, Maine the right to "petition the Administrator for a finding that any major source . . . emits or would emit any air pollutant" that "contribute[s] significantly to nonattainment in, or interfere with maintenance by, any other State with respect to [a] national primary or secondary ambient air quality standard." *See* 42 U.S.C. § 7426(b), § 7410(a)(2)(D)(i)(I) (noting that downwind states or "political subdivision[s]" may petition EPA).[8]

In this case, the Town of Eliot has submitted air quality evidence showing that the Schiller Plant's emissions are *by themselves* predicted to cause nonattainment in Eliot, requiring

[7] These modeling analyses are consistent with data from the New Hampshire air quality monitor at Peirce Island. This monitor is located in New Hampshire on an island in the bay into which the Piscataqua empties (Lat. 43.0753°, Long. -70.748°). At this location, the Schiller AERMOD modeling analyses do not predict particularly high concentrations of SO_2. *See* Schiller Modeling Report, Figures 3 and 4. Nonetheless, the Peirce Island monitor has recorded numerous hours with ambient SO_2 concentrations exceeding or nearly exceeding the 75 parts per billion level in the NAAQS. *See* Peirce Island Monitor Data, attached hereto as Exhibit 8, (showing peak concentrations of 70 ppb in 2011, 73 ppb in 2009, and 85 ppb in 2008, as compared with the 75 ppb/196.2 micrograms per cubic meter NAAQS) (data taken from U.S. EPA Interactive Map, *at* http://www.epa.gov/airdata/ad_maps.html). Notably, there are no SO_2 monitors for Maine near the Schiller plant.

[8] As noted above, because the Schiller Plant emits greatly in excess of 100 tons per year of SO_2, it qualifies as a "major source" under Section 126 of the Clean Air Act. *See* 42 U.S.C. § 7602(j).

EPA's finding of a section 126 violation. *See Michigan v. EPA*, 213 F.3d 663, 684 (D.C. Cir. 2000). Again, impacts of approximately 400 micrograms of SO_2 per cubic meter of air are modeled to occur within Eliot from the Schiller Plant's emissions, even without consideration of background levels of SO_2. *See* Schiller Modeling Report at 4; *id.* at Figures 3 and 4; Schiller Modeling Supplement.

As noted above, and as detailed in the accompanying Schiller Modeling Report, other particularly serious violations occur in Kittery and elsewhere in York County and southern Maine, where the modeling results show significant exceedences of the levels permitted by the NAAQS. These violations of the SO_2 NAAQS can have severe adverse public health effects on the people in Eliot and others in the region, including those who live, work, travel, or recreate in the impacted areas.

Thus, the AERMOD modeling results for the Schiller Plant more than meet the standard of a section 126 Petition and trigger EPA's duty to grant the petition. Indeed, the D.C. Circuit has explained that a source's or state's significant contribution to downwind nonattainment must only be identified by some "measurable contribution." *Michigan v. EPA*, 213 F.3d at 684. Here, the Eliot Board of Selectmen has shown that the Schiller Plant's emissions are predicted to cause, on their own, an actual exceedence or violation of the SO_2 NAAQS standard, which more than demonstrates mere significant contribution to nonattainment or interference with maintenance of the NAAQS standard. *See, e.g.*, Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call, 70 Fed. Reg. 25,162, 25,191 (May 12, 2005) (explaining that "the threshold for evaluating the air quality component of determining whether an individual State's emissions 'contribute significantly' to downwind nonattainment of the annual PM2.5 standard, under CAA section 110(a)(2)(D) should be very small compared to the NAAQS").

In short, the Eliot Petition and the evidence submitted herewith regarding the Schiller Plant's SO_2 emissions demonstrate that the facility is causing and contributing to nonattainment

of the NAAQS in the town of Eliot, Maine. As such, EPA must grant the Petition. *See* Portland Rule, 76 Fed. Reg. at 69,063.

C. Section 126 of the Act Requires EPA to Act Within 60 Days of this Petition, and Requires the Plant to Reduce Its Emissions as Expeditiously as Practicable And Within Three Years.

Section 126 establishes clear deadlines for action by the Administrator in response to a petition under that section. 42 U.S.C. § 7426; *GenOn Rema, LLC v. EPA*, --- F.3d --- (3rd Cir. 2013), 2013 WL 348146 at *5. The Administrator must make the requested finding or deny the petition within 60 days after receipt of the petition, and after a public hearing. 42 U.S.C. § 7426(b).

Once EPA makes a finding under section 126(b), section 126(c) requires that the violating source shall not operate three months after the finding regardless of whether the source has been operating under a duly issued state operating permit. 42 U.S.C. § 7426(c). The Administrator may allow the source to operate beyond such time only if the source complies with emission limitations and compliance schedules (containing increments of progress) as the Administrator may direct to bring about compliance.[9] *Id.* Such compliance must be brought about "as expeditiously as practicable," and in no case later than three years after the date of the Administrator's finding. *Id.*

Accordingly, EPA must act on this petition within 60 days and must provide for a public hearing as per the deadlines set forth in section 126 of the Act. Moreover, EPA must require the Plant to either shut down within three months, or require emissions reductions sufficient to

[9] The term "emission limitation" means a requirement established by the state or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation of maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under the Act. 42 U.S.C. § 7602(k). The term "compliance schedule" means a schedule of required measures including an enforceable sequence of actions or operations leading to compliance with an emission limitation, other limitation, prohibition, or standard. 42 U.S.C. § 7602(p).

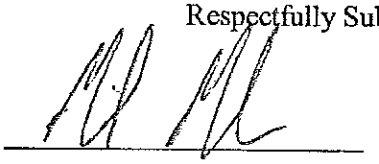
eliminate the facility's interference with the town of Eliot, Maine's ability to attain the NAAQS as expeditiously as practicable, but at most within three years.[10]

III. Conclusion

AERMOD modeling shows that the Schiller Plant is causing and significantly contributing to SO_2 impacts well in excess of the NAAQS in the town of Eliot, Maine, as evaluated according to best practices and all available EPA guidance. As such, EPA should grant the Eliot Board of Selectmen's petition and issue a finding that the Schiller Plant is causing and significantly contributing to nonattainment of the one-hour SO_2 NAAQS in the town of Eliot. Consequent to that finding, EPA should direct the Schiller Plant to—as expeditiously as practicable but in no case within longer than three years—reduce its SO_2 emissions sufficiently to prevent interference with Eliot's ability to attain the NAAQS.

Dated: August 22, 2013

Respectfully Submitted,



Michael T. Moynahan

Chairman, Board of Selectmen

Eliot, Maine

[10] The fact that the New Hampshire SIP implementing the new SO_2 NAAQS for Schiller has not yet been finalized does not impact this requirement. Congress intended that section 126 process operate independently of the Section 110 SIP process, H.R. Rep. 95-249 at 331 (1977), EPA has interpreted these sections as operating independently of one another in proposing to grant previous petitions under section 126, *see* 76 Fed. Reg. at 19,665, and the federal courts have ratified EPA's interpretation. *GenOn Rema, LLC v. EPA*, --- F.3d --- (3rd Cir. 2013), 2013 WL 348146 at *4 (rejecting argument that Section 126 was subordinate to the SIP process, and instead finding that "Section 126(b) contains no temporal limitation on a state's right to petition the EPA"); *see also Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1038, 1047-48 (D.C. Cir. 2001) (upholding EPA's decision to move forward with a proceeding under section 126 of the Act against twelve states for causing violation of Ozone NAAQS in several downwind states in spite of the fact that a proceeding under section 110 was pending against the same downwind states, requiring them to revise their SIPs to prevent further contribution to downwind NAAQS violations; noting also that EPA's interpretation that sections 110 and 126 "operate independently" is accorded deference). At any rate, as discussed above, New Hampshire's proposed SIP does not place hourly emission limits on Schiller Station sufficient to ensure that the NAAQS is not exceeded in Maine; indeed, it does not place any new operating requirements on Schiller at all.

EXHIBIT 1

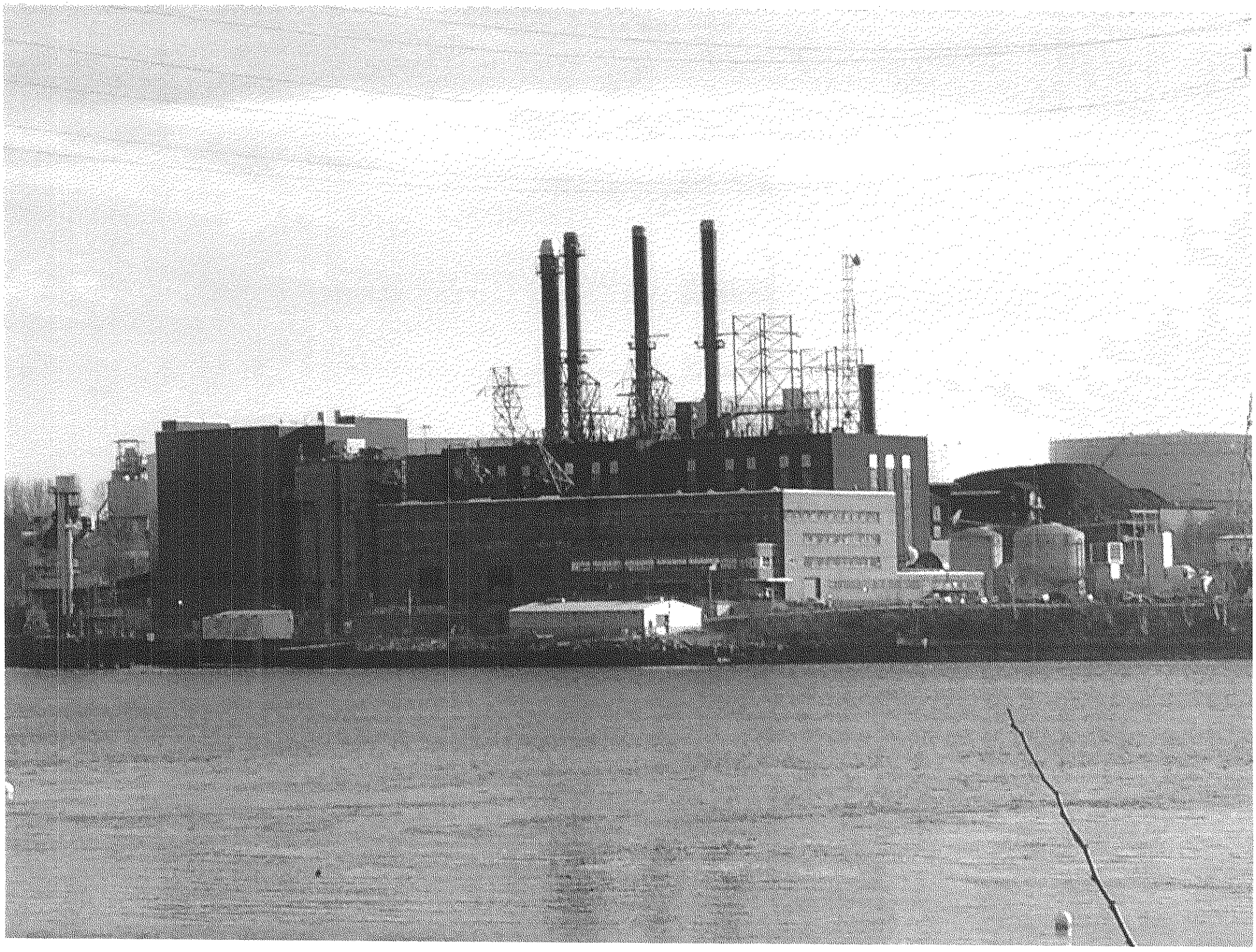


EXHIBIT 2

Schiller Station

Portsmouth, New Hampshire

Sierra Club Evaluation of Compliance with 1-hour SO_2 NAAQS

August 29, 2012

Conducted by:

Steven Klafka, P.E., BCEE

Wingra Engineering, S.C.

Madison, Wisconsin

1. Introduction

The Sierra Club prepared an air modeling impact analysis to help USEPA, state and local air agencies identify facilities that are likely causing violations of the one-hour sulfur dioxide (SO_2) national ambient air quality standard (NAAQS). This document describes the results and procedures for an evaluation conducted for the Schiller Station located in Portsmouth, New Hampshire.

The dispersion modeling analysis predicted ambient air concentrations for comparison with the one hour SO_2 NAAQS. The modeling was performed using the most recent version of AERMOD, AERMET, and AERMINUTE, with data provided to the Sierra Club by regulatory air agencies and through other publicly-available sources as documented below. The analysis was conducted in adherence to all available USEPA guidance for evaluating source impacts on attainment of the 1-hour SO_2 NAAQS via aerial dispersion modeling, including the AERMOD Implementation Guide; USEPA's Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010; modeling guidance promulgated by USEPA in Appendix W to 40 CFR Part 51; and, USEPA's March 2011 Modeling Guidance for SO_2 NAAQS Designations, available at http://www.epa.gov/ttn/scram/SO2%20Designations%20Guidance%202011.pdf.

2. Compliance with the One-Hour SO_2 NAAQS

2.1 One-Hour SO2 NAAQS

The one-hour SO_2 NAAQS takes the form of a three-year average of the 99th-percentile of the annual distribution of daily maximum one-hour concentrations, which cannot exceed 75 ppb.[1] Compliance with this standard was verified using USEPA's AERMOD air dispersion model, which produces air concentrations in units of $\mu g/m^3$. The one-hour SO_2 NAAQS of 75 ppb equals 196.2 $\mu g/m^3$, and this is the value used for determining whether modeled impacts exceed the NAAQS.[2] The 99th-percentile of the annual distribution of daily maximum one-hour concentrations corresponds to the fourth-highest value at each receptor for a given year.

2.2 Modeling Results

Modeling results for Schiller Station are summarized in Table 1. It was determined that, based on either currently permitted emissions, proposed emission limitations or measured actual emissions, Schiller Station is estimated to create SO_2 concentrations which exceed the 1-hour NAAQS.

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[1] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010.
[2] The ppb to $\mu g/m^3$ conversion is found in the source code to AERMOD v. 11103, subroutine Modules. The conversion calculation is 75/0.3823 = 196.2 $\mu g/m^3$.

The currently approved, proposed, and measured actual emission rates used for the modeling analysis are summarized in Table 2. Based on the modeling results using the current allowable emissions, emission reductions from current rates considered necessary to achieve compliance with the 1-hour NAAQS were calculated and presented in Table 3.

Based on either the current allowable or proposed allowable emissions, predicted exceedences of the 1-hour NAAQS for SO_2 extend out to a distance of 50 kilometers throughout the region in the states of New Hampshire and Maine. Figure 1 in the appendix to this report shows the extent of NAAQS violations throughout the entire 50 kilometer modeling domain. The predicted concentrations in this figure do not include any background concentration. The extent of NAAQS violations will vary depending on the applicable background concentration for the area. For New Hampshire, the background concentration is assumed to be 130.8 $\mu g/m^3$ so NAAQS violations occur at 65.4 $\mu g/m^3$. or higher. This is the design value measured during 2008 to 2010 at the monitor located at Pierce Island in Portsmouth, Rockingham County, New Hampshire. A modeling evaluation of this background concentration showed only a 2% contribution by SO_2 emissions from Schiller Station.

For Maine, the background concentration is 10.5 $\mu g/m^3$ so NAAQS violations occur at 185.7 $\mu g/m^3$ or higher. This is the design value measured during 2008 to 2010 at the monitor located in Bar Harbor, Hancock County, Maine.

Figure 2 in the appendix shows NAAQS violations occurring in Kittery, Maine. The predicted concentrations incorporate a background concentration of 10.5 $\mu g/m^3$.

Figures 3 and 4 provide regional and local results based on the proposed allowable emissions.[4]

2.3 Conservative Modeling Assumptions

A dispersion modeling analysis requires the selection of numerous parameters which affect the predicted concentrations. For the enclosed analysis, several parameters were selected which under-predict facility impacts.

Assumptions used in this modeling analysis which likely under-estimate concentrations include the following:

- Use of 24-hour average allowable emissions to determine compliance with the 1-hour average NAAQS. Emissions during any 1-hour period may be higher than assumed for the modeling analysis.
- No consideration of facility operation at less than 100% load. Stack parameters such as exit flow rate and temperature are typically lower at less than full load, reducing pollutant dispersion and increasing predicted air quality impacts.
- No consideration of off-site sources. These other sources of SO_2 will increase the predicted impacts.

- No consideration of one-minute wind speeds to reduce calm or missing wind speed measurements. AERMOD does not simulate dispersion under calm or missing wind conditions. There is no estimated concentration for these hours even though low wind speeds may result in high air quality impacts.

Table 1 - SO_2 Modeling Results for Schiller Station Modeling Analysis

Location	Emission Rates	Averaging Period	99th Percentile 1-hour Daily Maximum (µg/m³)				Complies with NAAQS?
			Impact	Background	Total	NAAQS	
New Hampshire	Allowable[3]	1-hour	459.5	130.8	590.3	196.2	No
	Allowable[4]	1-hour	361.5	130.8	492.3	196.2	No
	Maximum	1-hour	316.9	130.8	447.7	196.2	No
Maine	Allowable[3]	1-hour	652.5	10.5	663.0	196.2	No
	Allowable[4]	1-hour	542.5	10.5	553.0	196.2	No
	Maximum	1-hour	444.8	10.5	455.3	196.2	No
Massachu-setts	Allowable[3]	1-hour	63.2	26.2	89.4	196.2	Yes
	Allowable[4]	1-hour	52.5	26.2	78.7	196.2	Yes
	Maximum	1-hour	43.2	26.2	69.4	196.2	Yes

Table 2 - Modeled SO_2 Emissions from Schiller Station

Stack ID	Unit ID	Allowable Emissions[3] 24-hour Average (lbs/hr)	Allowable Emissions[4] 24-hour Average (lbs/hr)	Maximum Emissions[5] 1-hour Average (lbs/hr)
S01	Unit 4	1,664.6	1,377.6	971.2
S02	Unit 5	76.2	76.2	66.1
S03	Unit 6	1,664.6	1,377.6	1,286.9
Total		3,405.4	2,831.4	2,324.2

[3] Allowable emissions are based on 24-hour average limitations in Title V Operating Permit TV-OP-053 issued March 9, 2007 by NHDES. Unit 4 and 6 allowable emissions are 2.9 lbs per mmbtu.

[4] Allowable emissions are based on 24-hour average limitations in Draft Temporary Operating Permit TP-0106 issued July 24, 2012 by NHDES. Unit 4 and 6 allowable emissions are 2.4 lbs per mmbtu.

[5] Maximum emission rate is based on measured hourly rates reported for 2010 in USEPA, Clean Air Markets - Data and Maps.

Table 3 - Required Emission Reductions for Compliance with 1-hour SO_2NAAQS

Location	Acceptable Impact (NAAQS - Background) 99th Percentile 1-hour Daily Max ($\mu g/m^3$)	Required Total Facility Maximum Emission Reduction (%)	Required Total Facility Maximum Emission Rate (lbs/hr)	Required Total Facility Maximum Emission Rate (lbs/mmbtu)
New Hampshire	66.4	86%	492.1	0.41
Maine	185.7	72%	969.2	0.81

Note: Required emission reductions are derived from modeling results based on the current allowable emissions.[3]

3. Modeling Methodology

3.1 Air Dispersion Model

The modeling analysis used USEPA's AERMOD program, version 11103. AERMOD, as available from the Support Center for Regulatory Atmospheric Modeling (SCRAM) website, was used in conjunction with a third-party modeling software program, *AERMOD View*, sold by Lakes Environmental Software.

3.2 Control Options

The AERMOD model was run with the following control options:

- One-hour average air concentrations
- Regulatory defaults
- Flagpole receptors

To reflect a representative inhalation level, a flagpole height of 1.5 meters was used for all modeled receptors. This parameter was added to the receptor file when running AERMAP, as described in Section 4.4.

An evaluation was conducted to determine if the modeled facility was located in a rural or urban setting using USEPA's methodology outlined in Section 7.2.3 of the Guideline on Air Quality Models.[6] For urban sources, the URBANOPT option is used in conjunction with the urban population from an appropriate nearby city and a default surface roughness of 1.0 meter. Methods described in Section 4.1 to determine whether rural or urban dispersion coefficients were used.

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[6] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005.

3.3 Output Options

The AERMOD analysis was based on five years of recent meteorological data. The surface measurements were obtained from the Portsmouth International Airport at Pease located 2 miles from Schiller Station and were supplemented with upper air measurements from the station at Gray, Maine. The modeling analyses used one run with five years of sequential meteorological data from 2006-2010. Consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations, the MXDYBYYR and MAXDCONT output options were used to create a table of fourth-high one-hour SO_2 impacts.[7] This provided a file of one-hour SO_2 concentrations consistent with the form of the one-hour SO_2 NAAQS. It is from these files that the maximum one-hour SO_2 value was determined and reported. Please see Table 1 for the modeling results. This file also provided the data necessary for preparing air concentration isopleths. Please see Figure 1 for a presentation of concentration isopleths.

4. Model Inputs

4.1 Geographical Inputs

The "ground floor" of all air dispersion modeling analyses is establishing a coordinate system for identifying the geographical location of emission sources and receptors. These geographical locations are used to determine local characteristics (such as land use and elevation), and also to ascertain source to receptor distances and relationships.

The Universal Transverse Mercator (UTM) NAD83 coordinate system was used for identifying the easting (x) and northing (y) coordinates of the modeled sources and receptors. Stack locations were obtained from facility permits and prior modeling files provided by the New Hampshire Department of Environmental Services. The stack locations were then verified using aerial photographs.

The facility was evaluated to determine if it should be modeled using the rural or urban dispersion coefficient option in AERMOD. The site was not obviously rural or urban, so a GIS was used to determine whether rural or urban dispersion coefficients apply to a site. Land use within a three-kilometer radius circle surrounding the facility was considered. USEPA guidance states that urban dispersion coefficients are used if more than 50% of the area within 3 kilometers has urban land uses. Otherwise, rural dispersion coefficients are appropriate.[8]

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[7] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 24-26.
[8] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section 7.2.3.

USEPA's AERSURACE model Version 08009 was used to develop the meteorological data for the modeling analysis. This model evaluates surrounding land use and provides a summary of land use types within 3 kilometers. Based on the output from the AERSURFACE, approximately 14% of surrounding land use around the facility is considered urban. Since this is less than 50%, rural dispersion coefficients were used for modeling the facility. Please refer to Section 4.5.3 for a discussion of the AERSURFACE analysis.

4.2 Emission Rates and Source Parameters

The modeling analyses only considered SO_2 emissions from the facility. Off-site sources were not considered. Concentrations were predicted for two scenarios: 1) approved or allowable emissions based on permits issued by the regulatory agency, and 2) measured actual hourly SO_2 emissions obtained from USEPA's Clean Air Markets Database.

Stack parameters and emissions used for the modeling analysis are summarized in Table 4.

Table 4 – Schiller Station Stack Parameters and Emissions

Description	Unit 4	Unit 5	Unit 6
X Coord. [m]	354822	354845	354841
Y Coord. [m]	4773170	4773124	4773144
Base Elevation [m]	7.95	7.31	6.6
Release Height [m]	68.89	69.19	68.89
Gas Exit Temperature [°K]	450	431.483	450
Gas Exit Velocity [m/s]	21.555	25.24	21.555
Inside Diameter [m]	2.44	2.44	2.44
Current Allowable Emission Rate [g/s]	209.7	9.6	209.7
Proposed Allowable Emission Rate [g/s]	173.5	9.6	173.5
Maximum Emission Rate [g/s]	122.4	8.3	162.1

The above stack parameters and emissions were obtained from regulatory agency permit files and files from prior modeling analyses.[9] [10] The analysis was conducted based on 100% operating load using maximum exhaust flow rates and emission rates. Operation at less than full capacity loads was not considered. This assumption tends to under-predict impacts since stack parameters such as exit flow rate and temperature are typically lower at less than full load, reducing pollutant dispersion and increasing predicted air quality impacts. When possible, stack parameters such as emission rates,

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[9] NHDES, Title V Operation Permit TV-OP-053, March 9, 2007.

[10] AERMOD modeling files provided by NHDES for the 2006 NWPP analysis for the PSNH Schiller Wood Fired Boiler.

diameters, and exit flow rates were checked for accuracy.

4.3 Building Dimensions and GEP

Modeling files were provided by the regulatory agency and included results from a prior downwash analysis. These results were incorporated into the AERMOD analysis presented in this report.

4.4 Receptors

For Schiller Station, three receptors grids were employed:

1. A 100-meter Cartesian receptor grid centered on Schiller Station and extending 5 kilometers.
2. A 500-meter Cartesian receptor grid centered on Schiller Station and extending 10 kilometers.
3. A 1000-meter Cartesian receptor grid centered on Schiller Station and extending 50 kilometers.

A flagpole height of 1.5 meters was used for all these receptors in the 5, 10 and 50 kilometer grids.

Elevations from stacks and receptors were obtained from National Elevation Dataset (NED) GeoTiff data. GeoTiff is a binary file that includes data descriptors and geo-referencing information necessary for extracting terrain elevations. These elevations were extracted from 1 arc-second (30 meter) resolution NED files using USEPA's AERMAP program, v. 11103.

4.5 Meteorological Data

The applicable state air regulatory agency was contacted to determine the availability of existing AERMOD-ready meteorological data files. NHDES originally provided files from the 1990 to 1994 period for the Portsmouth International Airport at Pease. This is located approximately 2 miles west of Schiller Station.

To improve the accuracy of the modeling analysis, new meteorological data from the most recently available measurements at the airport, 2006 to 2010, were used. One-minute ASOS data were not available for this airport so USEPA methods were not used to reduce calm and missing hours.[11] AERMOD does not simulate dispersion under calm or missing wind conditions. There is no estimated concentration for these hours even though low wind speeds may result in high air quality impacts.

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[11] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, p. 19.

The meteorological data was prepared using the USEPA's program AERMET which creates the model-ready surface and profile data files required by AERMOD. Required data inputs to AERMET included surface meteorological measurements, twice-daily soundings of upper air measurements, and the micrometeorological parameters surface roughness, albedo, and Bowen ratio. This section discusses how the meteorological data was prepared for use in the one-hour SO_2 NAAQS modeling analyses. AERMET v. 11059 was used for these tasks.

4.5.1 Surface Meteorology

We used 2006 through 2010 Integrated Surface Hourly (ISH) data obtained from the National Climatic Data Center (NCDC). From the ISH dataset, data from the airport site were extracted.

The ISH surface data was processed through AERMET Stage 1, which performs data extraction and quality control checks.

4.5.2 Upper Air Data

Upper-air data are collected by a "weather balloon" that is released twice per day at selected locations. As the balloon is released, it rises through the atmosphere, and radios the data back to the surface. The measuring and transmitting device is known as either a radiosonde, or rawindsonde. Data collected and radioed back include: air pressure, height, temperature, dew point, wind speed, and wind direction. The upper air data were processed through AERMET Stage 1, which performs data extraction and quality control checks.

For Schiller Station, the concurrent 2006 through 2010 upper air data from twice-daily radiosonde measurements obtained at the closest and most representative location were used. This location was the Gray, Maine measurement station. These data are in Forecast Systems Laboratory (FSL) format and were downloaded in ASCII text format from NOAA's FSL website.[12] All reporting levels were downloaded and processed with AERMET.

4.5.3 AERSURFACE

AERSURFACE is a non-guideline program that extracts surface roughness, albedo, and daytime Bowen ratio for an area surrounding a given location. AERSURFACE uses land use and land cover (LULC) data in the U.S. Geological Survey's 1992 National Land Cover Dataset to extract the necessary micrometeorological data. LULC data was used for processing meteorological data sets used as input to AERMOD.

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[12] Available at: http://esrl.noaa.gov/raobs/

AERSURFACE v. 08009 was used to develop surface roughness, albedo, and daytime Bowen ratio values in a region surrounding the meteorological data collection site. AERSURFACE was used to develop surface roughness in a one kilometer radius surrounding the data collection site. Bowen ratio and albedo was developed for a 10 kilometer by 10 kilometer area centered on the meteorological data collection site. These micrometeorological data were processed for monthly periods using 30-degree sectors. Seasonal moisture conditions were considered average with 3 months of snow cover.

4.5.4 Data Review

Missing meteorological data were not filled as the data file met USEPA's 90% data completeness requirement.[13] The AERMOD output file shows there was 7.9% missing data.

The representativeness of airport meteorological data is a potential concern in modeling industrial source sites.[14] The surface characteristics of the airport data collection site and the modeled source location were compared. Since Portsmouth International Airport at Pease is extremely close to Schiller Station (i.e. 2 miles), this meteorological data set was considered appropriate for this modeling analysis.

5. Background SO_2 Concentrations

Background concentrations were determined consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations.[15] To preserve the form of the one-hour SO_2 standard, based on the 99th percentile of the annual distribution of daily maximum one-hour concentrations averaged across the number of years modeled, the background fourth-highest daily maximum one-hour SO_2 concentration was added to the modeled fourth-highest daily maximum one-hour SO_2 concentration.[16]

Background concentrations were based on the 2008-10 design value measured by the ambient monitors located in New Hampshire, Maine and Massachusetts.[17]

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[13] USEPA, Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000, Section 5.3.2, pp. 5-4 to 5-5.
[14] USEPA, AERMOD Implementation Guide, March 19, 2009, pp. 3-4.
[15] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 20-23.
[16] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010, p. 3.
[17] http://www.epa.gov/airtrends/values.html

The background concentration for New Hampshire is the design value measured during 2008 to 2010 at the monitor located at Pierce Island in Portsmouth, Rockingham County, New Hampshire. This monitor is located approximately 4 kilometers southeast of Schiller Station, so a modeling evaluation was conducted to determine if SO2 emissions from Schiller Station contributed to this design value. It was estimated that only 2% of the design value was contributed by Schiller Station.

The background concentration for Maine is the design value measured during 2008 to 2010 at the monitor located in Bar Harbor, Hancock County, Maine.

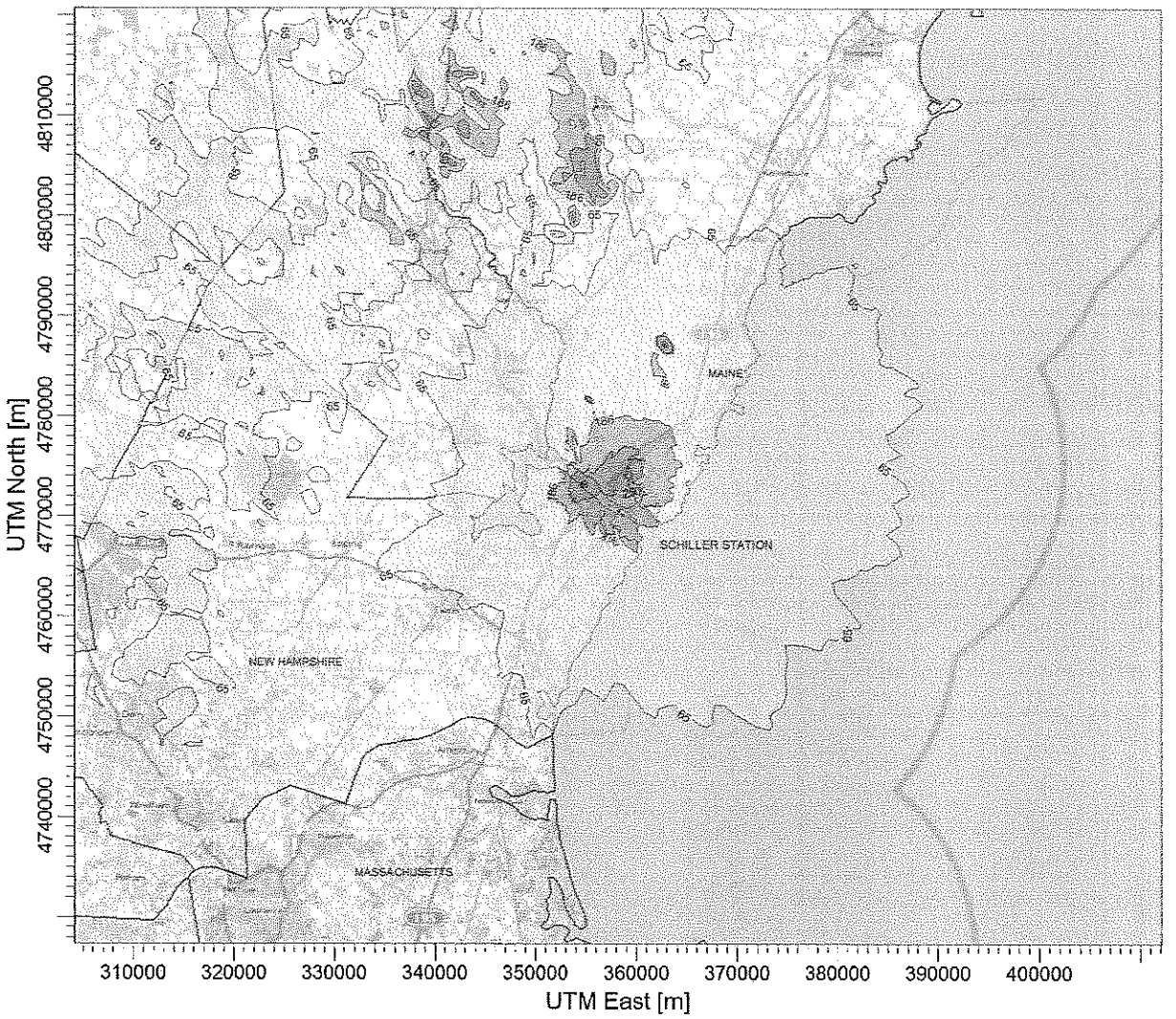
The background concentrations for Massachusetts is the design value measured during 2008-10 at the monitor located in Hampshire County.

Each of the background concentrations was the lowest design value for each state so may under-predict NAAQS exceedences.

6. Reporting

All input and output files from the programs used for this modeling analysis are available to regulatory agencies. These include analyses prepared with AERSURFACE, AERMET, AERMAP, and AERMOD.

Figure 1 - Regional View
1-hour SO2 NAAQS Compliance Analysis for Schiller Station, NH



1 HOUR AVERAGE SO2 CONCENTRATIONS (UG PER CUBIC METER)

65 ug/m3 exceeds NAAQS with New Hampshire background.

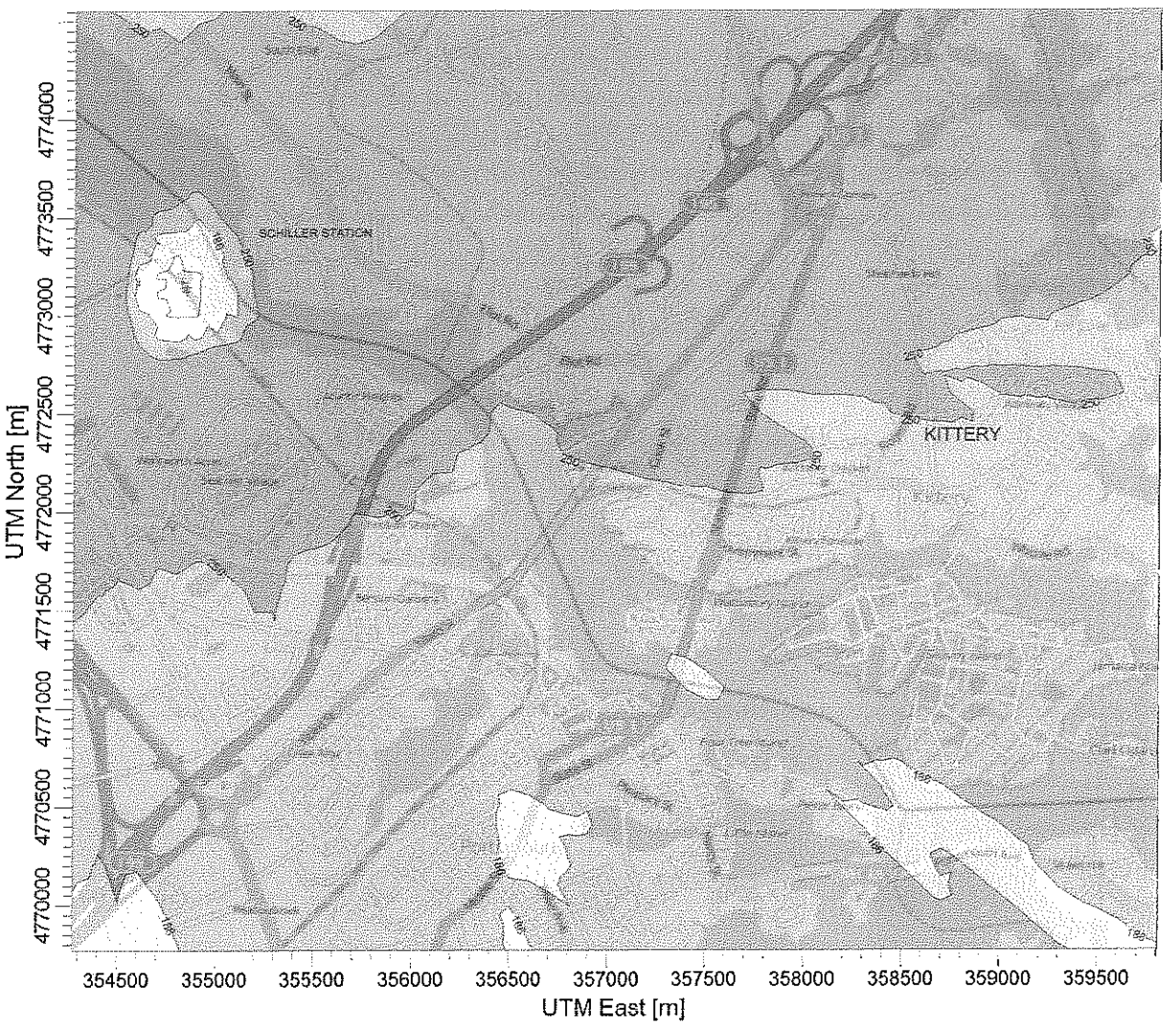
186 ug/m3 exceeds NAAQS with Maine background.

This is figure is based on the current allowable emissions for Units 4 and 6 of 2.9 lbs per mmbtu.

Total Sources **9**	**Conducted on behalf of the Sierra Club**
Total Receptors **22083**	**by Wingra Engineering, S.C.**
Output Type **Concentration**	SCALE: 1:678,817 0 20 km
Maximum **652.47407 ug/m^3**	DATE: **08/29/12**

AERMOD View - Lakes Environmental Software

Figure 2 - Kittery View
1-hour SO2 NAAQS Compliance Analysis for Schiller Station, NH



1 HOUR AVERAGE SO2 CONCENTRATIONS (UG PER CUBIC METER)

65 186 250 500 600

65 ug/m3 exceeds NAAQS with New Hampshire background.

186 ug/m3 exceeds NAAQS with Maine background.

This is figure is based on the current allowable emissions for Units 4 and 6 of 2.9 lbs per mmbtu.

Total Sources
9

Total Receptors
22083

Output Type
Concentration

Maximum
652.47407 ug/m^3

Conducted on behalf of the Sierra Club

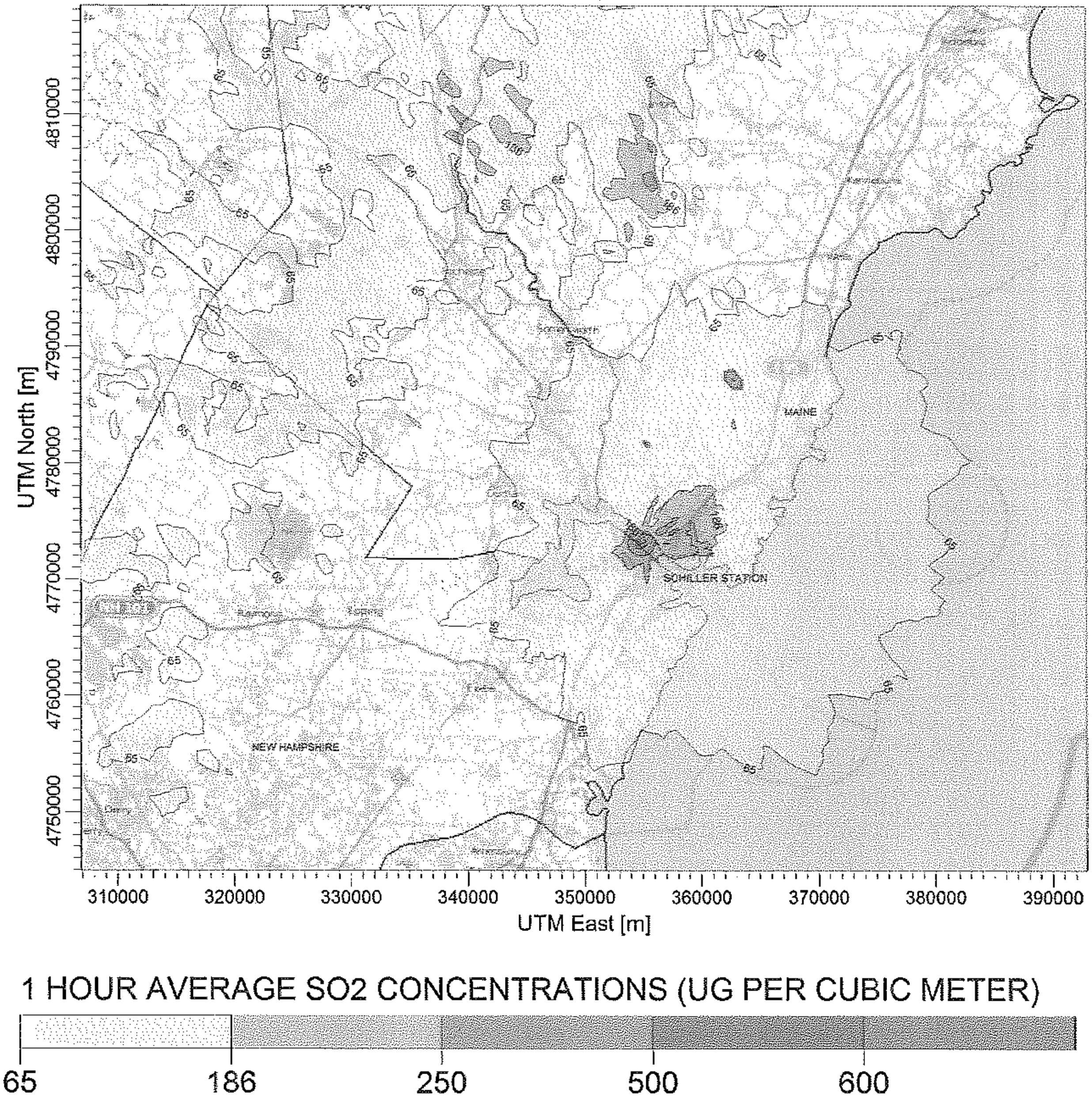
by Wingra Engineering, S.C.

SCALE: 1:34,793
0 1 km

DATE:
08/29/12

AERMOD View - Lakes Environmental Software

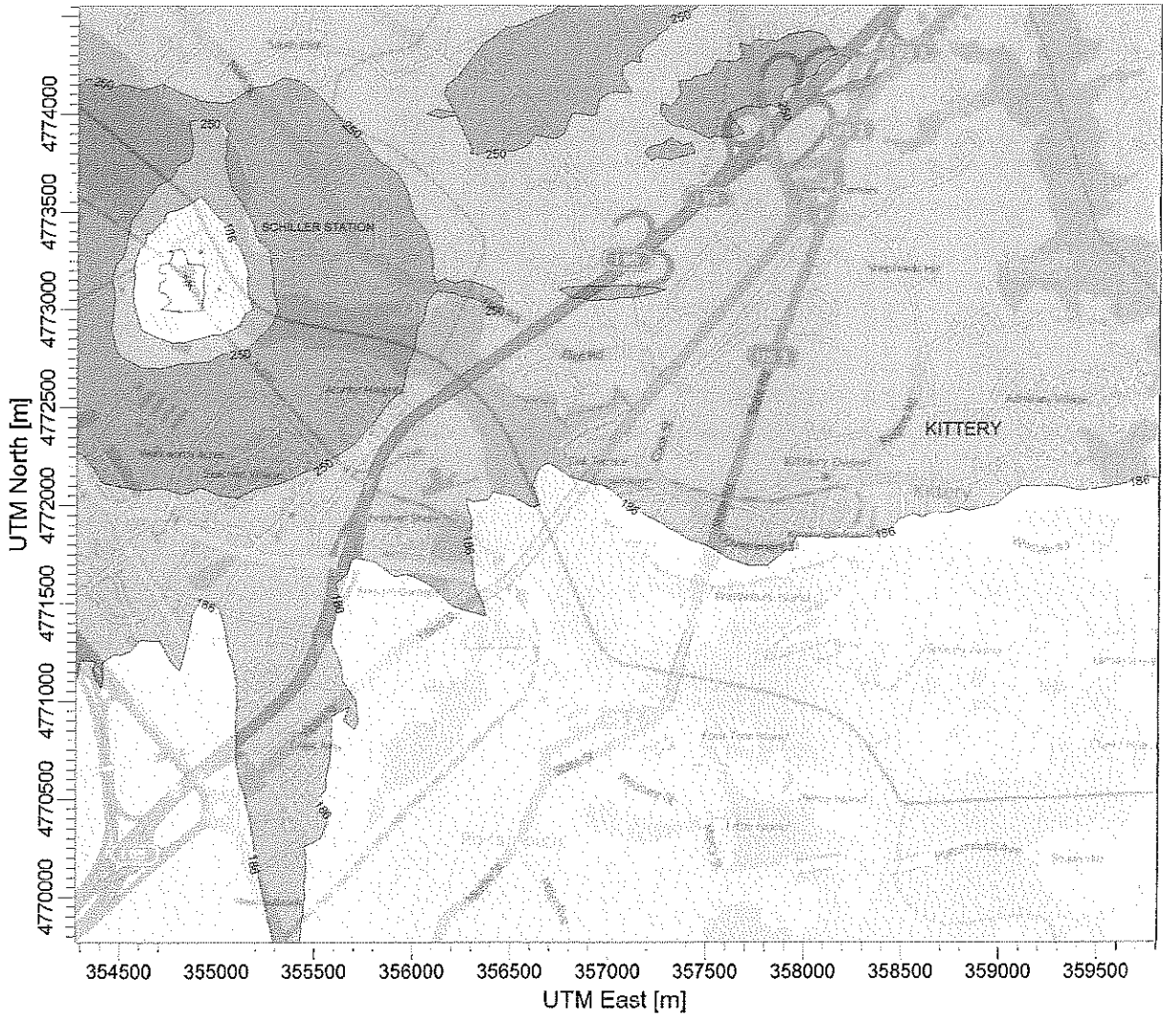
Figure 3 - Regional View
1-hour SO2 NAAQS Compliance Analysis for Schiller Station, NH



65 ug/m3 exceeds NAAQS with New Hampshire background. 186 ug/m3 exceeds NAAQS with Maine background. This is figure is based on the proposed allowable emissions for Units 4 and 6 of 2.4 lbs per mmbtu.	Total Sources 9	**Conducted on behalf of the Sierra Club**	
	Total Receptors **22083**	**by Wingra Engineering, S.C.**	
	Output Type **Concentration**	SCALE: 1:540,943 0 — 20 km	
	Maximum **542.47562 ug/m^3**	DATE: **08/29/12**	

AERMOD View - Lakes Environmental Software

Figure 4 - Kittery View
1-hour SO2 NAAQS Compliance Analysis for Schiller Station, NH



1 HOUR AVERAGE SO2 CONCENTRATIONS (UG PER CUBIC METER)

65 186 250 500 600

65 ug/m3 exceeds NAAQS with New Hampshire background.

186 ug/m3 exceeds NAAQS with Maine background.

This is figure is based on the proposed allowable emissions for Units 4 and 6 of 2.4 lbs per mmbtu.

Total Sources **9**	**Conducted on behalf of the Sierra Club**
Total Receptors **22083**	**by Wingra Engineering, S.C.**
Output Type **Concentration**	SCALE: 1:34,793 0 1 km
Maximum **542.47562 ug/m^3**	DATE: **08/29/12**

AERMOD View - Lakes Environmental Software

EXHIBIT 3

Office of Surveillance, Epidemiology, and Laboratory Services
Behavioral Risk Factor Surveillance System

Prevalence and Trends Data

Maine - 2010
Asthma

Adults who have been told they currently have asthma

	Yes	No
%	**10.0**	**90.0**
CI	(9.1-10.9)	(89.1-90.9)
n	843	7226

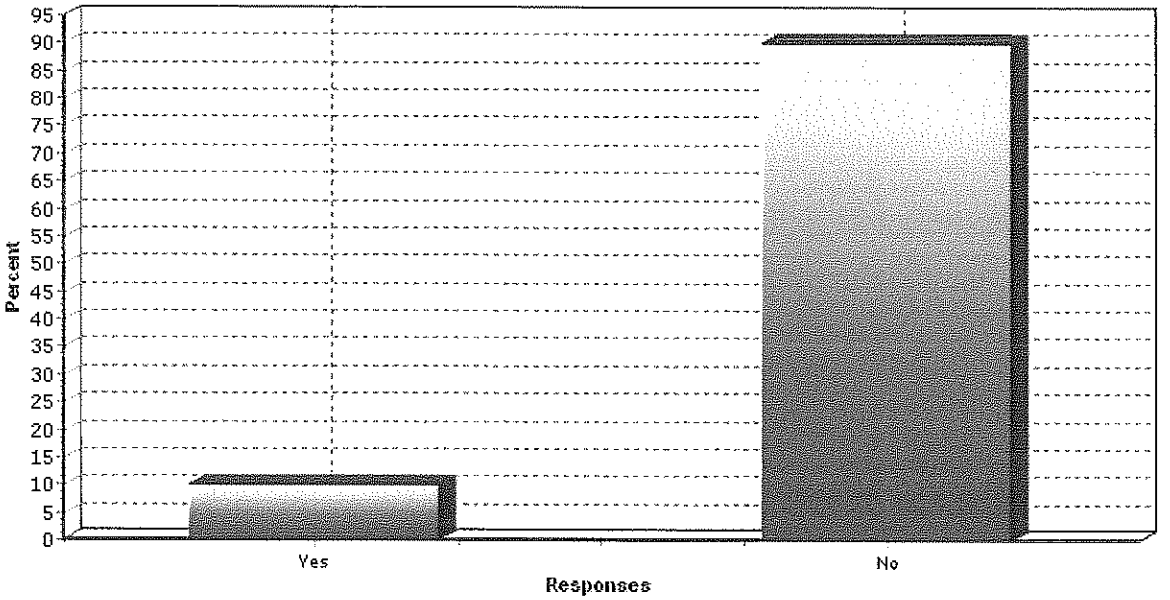
% = Percentage, CI = Confidence Interval, n = Cell Size
Percentages are weighted to population characteristics.

Use caution in interpreting cell sizes less than 50.

N/A = Not available if the unweighted sample size for the denominator was < 50 or the CI half width was > 10 for any cell, or if the state did not collect data for that calendar year.

See States conducting surveillance, by year.

Current Asthma Prevalence
Maine - 2010



Select Another Year For Maine: 2010 Go

Select Another State For 2010: Maine Go

*If you see that a question is not available for a particular year, it is because the question was dropped or changed. Check the category of interest for that year to find similar items.

*Denominator includes all respondents except those with missing, don't know, and refused answers.

*Respondents that have asthma.

EXHIBIT 4

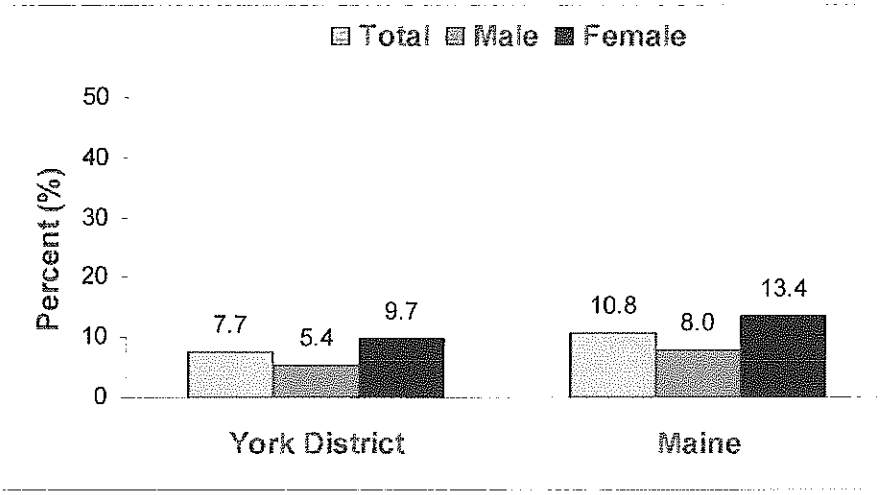
Department of Health and Human Services
Maine People Living Safe, Healthy and Productive Lives

John E. Baldacci, Governor Brenda M. Harvey, Commissioner

Asthma
York District

Prevalence of Asthma Among Adults, 2009

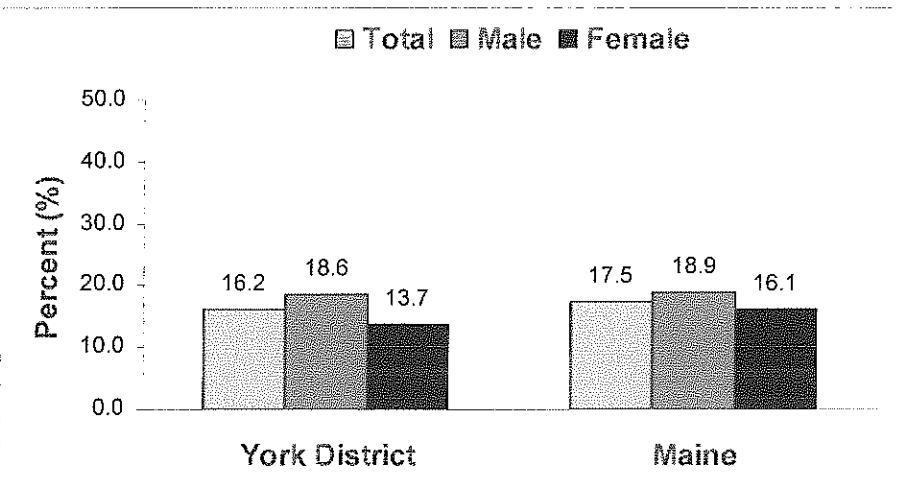
In 2009, nearly 8 percent of adults in York District said a doctor had told them they currently have asthma. This is slightly but not significantly lower than the percent of Maine adults who had been told they have current asthma. In York District, the percentage of females with current asthma is similar to the percentage of males with current asthma.



Behavioral Risk Factor Surveillance System, 2009

Prevalence of Asthma Among 5th and 6th Graders, 2009

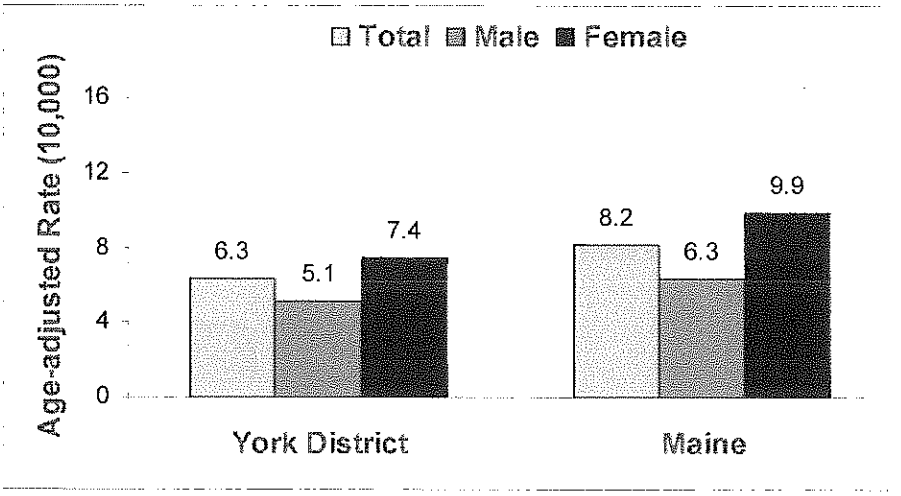
In 2009, more than 16 percent of all 5th and 6th graders in York District reported a doctor had told them they have asthma. This is similar to the percent in Maine overall.



Maine Integrated Youth Health Survey, 2009

Hospitalizations due to Asthma, 2004-2008

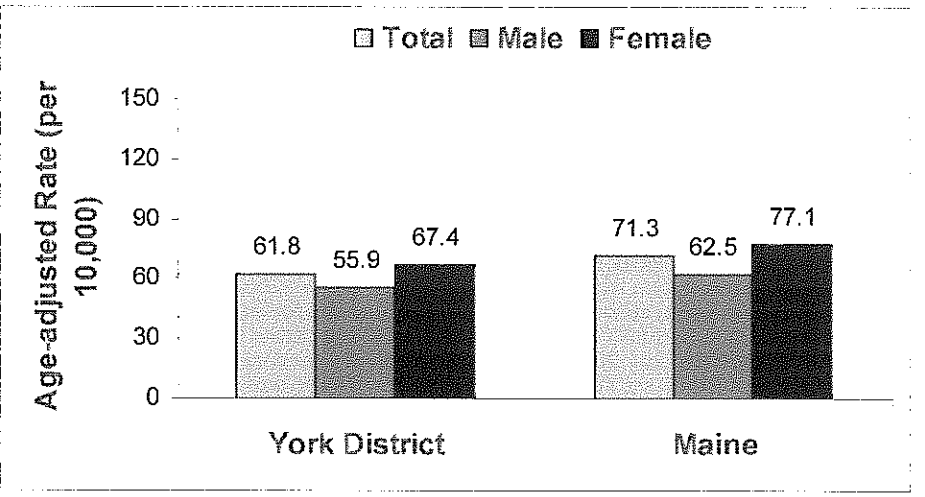
From 2004 through 2008, asthma was the primary reason for more than 630 hospitalizations of York District residents. The age-adjusted asthma hospitalization rate in York District was 6.3 per 10,000 population. This was lower than the statewide average rate for the same time period. After accounting for differences in age, females were more likely to be hospitalized for asthma than males.



Maine Hospital Inpatient Data, Maine Health Data Organization

Visits to the Emergency Department due to Asthma, 2008

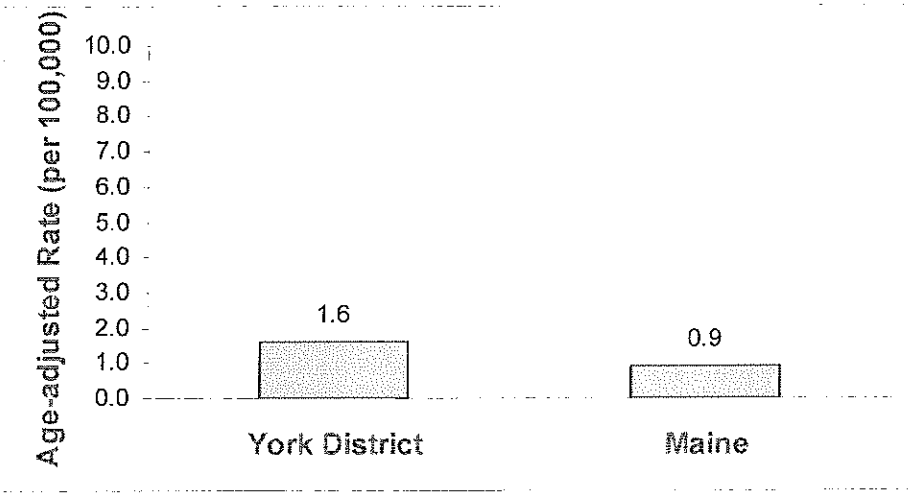
In 2008, nearly 1140 emergency department (ED) visits of York District residents were due to asthma. The age-adjusted asthma ED visit rate in York District was approximately 62 per 10,000 population. This was lower than the statewide rate for the same year. After accounting for differences in age, females were more likely to visit the ED for asthma treatment than males.



Maine Hospital Outpatient and Inpatient Data, Maine Health Data Organization

Deaths due to Asthma, 1999-2008

Between 1999 and 2008, 10 residents of York District died due to asthma. The age-adjusted death rate in York District was 1.6 per 100,000 population, which is slightly but not significantly higher than the statewide rate for the same time period.



Maine Office of Data, Research and Vital Records

Maine Center for Disease Control and Prevention

An Office of the Department of Health and Human Services

John E. Baldacci, Governor *Brenda M. Harvey, Commissioner*

Technical Notes

- Age-adjusted rates are adjusted to the year 2000 United States standard population.

EXHIBIT 5

State of New Hampshire
Department of Environmental Services
Air Resources Division

Temporary Permit

Permit No: TP-0106
Date Issued: October 30, 2012

This certifies that:

Northeast Utilities
Public Service Company of New Hampshire
780 North Commercial Street
Manchester, NH 03101

has been granted a Temporary Permit for:

Steam Boiler SR4, Steam Boiler SR6, and
Combustion Turbine SRCT

at the following facility and location:

Public Service of New Hampshire
Schiller Station
400 Gosling Road
Portsmouth, NH

Facility ID No: **3301500012**
Application No: **12-0101**, received June 18, 2012 – Temporary Permit

which includes devices that emit air pollutants into the ambient air as set forth in the permit application referenced above which was filed with the New Hampshire Department of Environmental Services, Air Resources Division (Division) in accordance with RSA 125-C of the New Hampshire Laws. Request for permit renewal must be received by the Division at least 90 days prior to expiration of this permit and must be accompanied by the appropriate permit application forms.

This permit is valid upon issuance and expires on **April 30, 2014**.

Acting Director
Air Resources Division

Abbreviations and Acronyms

AAL	Ambient Air Limit
acf	actual cubic foot
ags	above ground surface
ASTM	American Society of Testing and Materials
Btu	British thermal units
CAS	Chemical Abstracts Service
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DER	Discrete Emission Reduction
DES	New Hampshire Department of Environmental Services
Env-A	New Hampshire Code of Administrative Rules – Air Related Programs
ERC	Emission Reduction Credit
ft	foot or feet
ft3	cubic feet
gal	gallon
HAP	Hazardous Air Pollutant
hp	horsepower
hr	hour
kW	kilowatt
lb	pound
LPG	Liquified Petroleum Gas
MM	million
MSDS	Material Safety Data Sheet
MW	megawatt
NAAQS	National Ambient Air Quality Standard
NG	Natural Gas
NOx	Oxides of Nitrogen
NSPS	New Source Performance Standard
PM10	Particulate Matter < 10 microns
ppm	parts per million
psi	pounds per square inch
RACT	Reasonably Available Control Technology
RSA	Revised Statutes Annotated
RTAP	Regulated Toxic Air Pollutant
scf	standard cubic foot
SO2	Sulfur Dioxide
TSP	Total Suspended Particulate
tpy	tons per consecutive 12-month period
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

I. Facility Description

Public Service of New Hampshire – Schiller Station is a wood & fossil fuel-fired electricity generating facility owned and operated by Public Service of New Hampshire (PSNH), a subsidiary of Northeast Utilities. The facility includes three utility boilers: one wood & fossil fuel-fired boiler (designated as emission unit SR5) and two fossil fuel-fired boilers (designated as emission units SR4 and SR6). The facility also includes one combustion turbine (designated as emission unit SRCT). In addition to these electricity-generating units, the facility also includes an emergency generator, a primary and secondary coal crusher, coal and wood handling systems and various insignificant and exempt activities.

The purpose of this permit is to establish permit conditions to document previously-agreed operating and emission limitations on emission units SR4, SR6, and SRCT which were previously accepted by PSNH during review of projects on other emission units.

This Temporary Permit includes modified emission limitations for emission units SR4, SR6 and a new fuel use limitation for SRCT. The previous emission limitations for emission units SR4 and SR6 are contained in Title V Operating Permit TV-OP-053. All conditions of previously issued TV-OP-053 that this permit supercedes are specifically identified in this permit.

Upon issuance of this permit, the Owner or Operator shall comply with all unchanged terms and conditions of previous valid permits and Orders, and all terms and conditions of this permit.

II. Emission Unit Identification

This permit covers the devices identified in Table 1:

Table 1 - Emission Unit Identification

Emission Unit ID	Device Identification	Manufacturer Model Number Serial Number	Installation Date	Maximum Design Capacity and Permitted Fuel Type(s)
SR4	Steam Generating Unit No. 4 (Installed 1952) Dry Bottom Boiler with One End Firing	Foster Wheeler FW 90-1628	1952	574 MMBtu/hr Bituminous coal or Bituminous coal/biomass mixture[1] 575 MMBtu/hr No. 6 fuel oil
SR6	Steam Generating Unit No. 6 (Installed 1957) Dry Bottom Boiler with One End Firing	Foster Wheeler FW 36-3413	1957	574 MMBtu/hr Bituminous coal or Bituminous coal/biomass mixture: 575 MMBtu/hr No. 6 fuel oil
SRCT	Combustion Turbine	Pratt & Whitney FT4A-9DF	1970	290 MMBtu/hr JP-4 fuel oil or natural gas

[1] Bituminous coal/biomass mixture is defined for this permit to be a mixture of coal with up to 8 weight percent biomass as defined in Env-A 1401.03(c).

III. Operating and Emission Limitations

The Owner or Operator shall be subject to the operating and emission limitations identified in Table 2:

Table 2 - Operating and Emission Limitations

Item #	Requirement	Applicable Emission Unit	Regulatory Basis
1	*Sulfur Dioxide Emission Standard* SO_2 emissions from each unit shall be limited to 2.4 lb/MMBtu of heat input based on a calendar day average. *This condition supercedes the condition contained in Table 5 Item 1 and Table 6 Item 5 of Title V Operating Permit TV-OP-053 issued March 9, 2007.*	SR4 & SR6	Env-A 607.01(w)
2	*Fuel Usage Limitations* Fuel oil consumption in the SRCT shall be limited to 13,900,000 gallons in any consecutive 12-month period. *This condition supercedes part A) of the condition contained in Table 6 Item 18 of Title V Operating Permit TV-OP-053 issued March 9, 2007.*	SRCT	Env-A 607.01(w)
3	*Maximum Sulfur Content Allowable in Liquid Fuels* The sulfur content of JP-4 fuel oil shall not exceed 0.05 percent sulfur by weight. *This condition supercedes the condition contained in Table 6 Item 15 of Title V Operating permit TV-OP-053 issued March 9, 2007.*	SRCT	Env-A 607.01(w) *More stringent than* Env0A 1604.01(a)

IV. Reporting Requirements

The Owner or Operator shall be subject to the reporting requirements identified in Table 3:

Table 3 - Reporting Requirements

Item #		Frequency	Applicable Emission Unit	Regulatory Basis
1	*Semi-annual Permit Deviation and Monitoring Report* Submit a semi-annual permit deviation and monitoring report, which contains the following information for the reporting period: a. A summary of all permit deviations previously reported to the department pursuant to Table 4, Items 2 and 3 of this Permit; b. A list of all permit deviation recorded pursuant to Table 4, Item 1; and c. A summary of monitoring required by applicable air permits. *Parts a. and b. of this condition supercede the condition contained in Table 11, Item 18F) of Title V Operating Permit TV-OP-053 issued March 9, 2007. Part c. of this condition is satisfied by compliance with Table 11, Item 18 A) through E) of Title V Operating Permit TV-OP-053 issued March 9, 2007.*	Semi-annually by July 31st (for period January 1 through June 30) and January 31st (for reporting period July 1 through December 31)	Facility-wide	Env-A 907.04(b) & Env-A 911.05

V. Permit Deviation Recordkeeping and Reporting Requirements

This section shall supercede Section XXVIII and Table 11, Item 19 of Title V Operating Permit TV-OP-053 issued March 9, 2007.

The Owner or Operator shall be subject to the permit deviation recordkeeping and reporting requirements in Table 4 below, where permit deviation and excess emission are defined as follows:

Env-A 101, *Definitions*:

1. A *permit deviation* is any occurrence that results in an excursion from any emission limitation, operating condition, or work practice standard as specified in either a Title V permit, state permit to operate, temporary permit or general state permit issued by the Division.
2. An *excess emission* is an air emission rate that exceeds any applicable emission limitation.

Reporting a permit deviation is not affirmative defense for action brought for noncompliance.

Table 4 - Permit Deviation Recordkeeping and Reporting Requirements			
Item #	Requirement	Frequency	Regulatory Basis
1	*Permit Deviation Recordkeeping* In the event of a permit deviation, the Owner or Operator shall: a. Investigate and take corrective action immediately upon discovery of the permit deviation to restore the affected device, process, or air pollution control equipment to within allowable permit levels; and b. Record the following information: 1. The permit deviation; 2. The probable cause of the permit deviation; 3. The date of the occurrence; 4. The duration; 5. The specific device that contributed to the permit deviation; 6. Any corrective or preventative measures taken; and 7. The amount of any excess emission that occurred as a result of the permit deviation, if applicable.	Each permit deviation	Env-A 911.03
2	*Permit Deviation Reporting – No Excess Emissions* If the permit deviation does not cause excess emissions, but continues for a period greater than nine consecutive days, notify the Division of the subsequent corrective actions to be taken by e-mail (pdeviations@des.nh.gov), telephone (603-271-1370) or fax (603-271-1381).	On the tenth day of the permit deviation, unless it is a Saturday, Sunday, or state or federal legal holiday, in which event, the Division shall be notified on the next day which is not a Saturday, Sunday, or state or federal legal holiday	Env-A 911.04

Table 4 - Permit Deviation Recordkeeping and Reporting Requirements			
Item #	**Requirement**	**Frequency**	**Regulatory Basis**
3	*Permit Deviation Reporting – Excess Emissions* In the event of a permit deviation that causes excess emissions: a. Notify the Division of the permit deviation and excess emissions by e-mail, telephone or fax; and b. Submit a written report to the Division, which shall include the following information: 1. Facility name; 2. Facility address; 3. Name of the responsible official employed at the facility; 4. Facility telephone number; 5. Date(s) of the occurrence; 6. Time of the occurrence; 7. Description of the permit deviation; 8. The probable cause of the permit deviation; 9. Corrective action taken to date; 10. Preventative measures taken to prevent future occurrences; and 11. Date and time that the device, process, or air pollution control equipment returned to operation in compliance with an enforceable emission limitation, or operating condition; 12. The specific device, process or air pollution control equipment that contributed to the permit deviation; 13. The type and quantity of excess emissions emitted to the atmosphere due to the permit deviation; and 14. The calculation or estimation used to quantify the excess emissions.	*Notification*: Within twenty-four (24) hours of discovery of the permit deviation, unless it is a Saturday, Sunday, or state or federal legal holiday, in which event, the Division shall be notified on the next day which is not a Saturday, Sunday, or state or federal legal holiday *Written Report:* Within ten (10) days of discovery of the permit deviation	Env-A 911.04
4	*Data Availability Permit Deviations* In the event of a permit deviation caused by a failure to comply with the data availability requirements of Env-A 800: a. Notify the Division of the permit deviation by e-mail, telephone or fax; and b. Report the permit deviation to the Division, as part of the emissions report required pursuant to Env-A 808.14.	*Notification*: Within 10 days of discovery of the permit deviation *Written Report:* Within 30 calendar days after the end of the calendar quarter	Env-A 911.04(c)

EXHIBIT 6

FINDINGS OF FACT AND DIRECTOR'S DECISION

In the Matter of the Issuance of a Temporary Permit To
Public Service Company of New Hampshire - Schiller Station
Located at 400 Gosling Road, Portsmouth, New Hampshire
Facility Identification # 3301500012; Application # 12-0101

The New Hampshire Department of Environmental Services, Air Resources Division (DES) has a pre-construction permit program for new stationary sources or stationary sources making modifications. The permitting thresholds for this program are specified in the New Hampshire Code of Administrative Rules, Env-A 607.01, *Specific Applicability for Temporary Permits*. The purpose of the application submitted by Public Service Company of New Hampshire (PSNH) was not for new construction or modification, but rather to document previously agreed upon operating and emission limitations on emission units SR4, SR6, and SRCT at PSNH's Schiller Station located at 400 Gosling Road in Portsmouth, New Hampshire. Although PSNH did not propose any construction or modification at the facility, the Temporary Permit process was deemed the most appropriate method to process this application. Therefore, the Temporary Permit process procedures were followed for this application.

There are typically four phases in the Temporary Permit process. They are as follows:

- First, an applicant files an application to obtain a Temporary Permit. Once the application is received by DES, it undergoes an initial review to ensure that the information submitted is complete and includes all applicable regulatory requirements. If so, a "completeness determination" in the form of a letter is issued by DES.
- After the application has been deemed complete, DES performs a technical review which may include, but is not limited to, facility site visits and an analysis of historical information. Once DES has completed this technical review and is confident that the application accurately reflects the facility's operations, DES develops a "draft Temporary Permit". The draft Temporary Permit may contain certain testing requirements to verify compliance with permit terms and conditions. DES also typically prepares an "Application Review Summary" which describes the basis for the draft decision.
- Once the draft Temporary Permit is prepared, a notice is published as required by Env-A 621, *Permit Notice and Hearing Procedures: Temporary Permits and Permits to Operate.* The public, the United States Environmental Protection Agency (EPA), and any other interested parties are invited to submit comments on the draft Temporary Permit. An opportunity for a public hearing is also provided.
- After all public comments have been received and evaluated by DES, a final determination regarding the permit is made by the Director of the Air Resources Division (Director). If the determination is favorable, the draft Temporary Permit is finalized and issued. A draft Temporary Permit may be modified as a result of comments received during the public comment period. All pertinent comments received during the public comment period are addressed in a document called the "Findings of Fact and Director's Decision."

Any person aggrieved by the Director's decision can file a petition for appeal or settlement discussions with the Air Resources Council in accordance with the provisions of Env-A 621.10, *Appeals*.

Proposed Application Description

On June 18, 2012, PSNH submitted an application for a Temporary Permit to establish permit terms to document previously agreed upon operating and emission limitations on emission units SR4, SR6, and SRCT at PSNH's Schiller Station located at 400 Gosling Road in Portsmouth, New Hampshire. The operating and emission limitations were previously accepted by PSNH during the review of past projects on other emission units. There is no current construction project which triggered the need for the permit application. A description of the previous circumstances under which the need for the operating and emission limitations were identified are presented in the Permit Application Review Summary that was issued with the draft Temporary Permit.

Permit Notice and Hearing Procedures

Once DES completed its review of the application, it prepared a draft Temporary Permit containing the aforementioned operating and emission limitations. DES also prepared an Application Review Summary which described the background and basis of the draft permit. In accordance with Env-A 621 *Permit Notice and Hearing Procedures: Temporary Permits and Permits to Operate*, DES then published a public notice stating that the draft permit was available for review and comment. The notice was published in the *Union Leader* and *Portsmouth Herald* on July 30, 2012. The notice invited public comment, noted that a hearing could be requested, and indicated that any comments received during the public comment period would be considered in reaching a final decision. The notice specified that the deadline for filing written comments was August 29, 2012.

DES received written comments from one environmental organization, the Sierra Club, prior to the August 29, 2012 deadline. Pursuant to Env-A 621.09, *Opportunity for Response*, copies of all comments received by DES were forwarded to PSNH for review and comment, if desired. PSNH did not file a written response to the public comments.

Comments and Discussion

DES' responses to the public comments are addressed in the following discussion. The comments focused on three primary issues. The first two issues are related and addressed together. A brief description of the comments, and DES' responses are provided below.

Comments:

A. *The Draft Temporary Permit Must be Revised to Include SO_2 Emission Limits Sufficient to Prevent Nonattainment of the NAAQS in New Hampshire*
B. *The Draft Temporary Permit Must be Revised to Include SO_2 Emission Limits Sufficient to Prevent Nonattainment of the NAAQS in Neighboring Communities in Maine*

Discussion:

As explained below, the establishment of a SO_2 limit for a source such as Schiller is dependent upon stationary source modeling requirements for permitting evaluations, which is separate from New Hampshire's pending attainment implementation plan for the 1-hour SO_2 National Ambient Air Quality Standard (NAAQS).

Stationary Source Modeling for Permitting Evaluations

Sierra Club asserts that permitted emissions from Schiller would result in modeled violations of the 1-hour SO_2 NAAQS. Sierra Club requests that emission limits be established in Temporary Permit TP-0106 to ensure modeled compliance with the 1-hour SO_2 NAAQS.

An air dispersion modeling analysis is one tool used by New Hampshire during stationary source permit application evaluations to ensure that emissions from stationary sources do not contribute to ambient air quality exceedances of the NAAQS. As noted by Sierra Club, DES has updated its New Hampshire Code of Administrative Rules Env-A 300, *Ambient Air Quality Standards*, to incorporate the current NAAQS. The updated version of Env-A 300 became effective September 1, 2012 and includes the new 1-hour SO_2 NAAQS. With the recent rule updates effective September 1, 2012, stationary source modeling for new projects will become one of New Hampshire's tools for protecting air quality relative the most up-to-date NAAQS.

One way in which the updated rules will protect air quality relative to the updated NAAQS is by requiring that modeling analyses be performed for any projects that meet the modeling thresholds in Env-A 606 for which applications are received after September 1, 2012 - the effective date of the rule. Such modeling will be performed in accordance with EPA modeling guidance for the new 1-hour standards. The rules do not require stationary sources to demonstrate modeled compliance with the updated NAAQS unless/until they submit an application for a project for which modeling is required pursuant to Env-A 606.

As stated in the draft permit and supporting documentation, the purpose of this permit is to establish permit conditions to document previously agreed upon emission limitations on emission units at Schiller Station. The permit applications for the projects for which the emission limits are being established in TP-0106 were submitted prior to September 1, 2012. The limits presented in the permit are based on modeling methods and standards in effect at the time that applications for the projects were received. The intent of this permit is solely to establish enforceable permit conditions based on these previous analyses which can then be incorporated into the Title V Operating Permit for Schiller Station. PSNH has not proposed a project at Schiller Station which would trigger a modeling analysis for the 1-hour SO_2 standard at this time. Therefore, an ambient air quality modeling analysis demonstrating compliance with the 1-hour SO_2 NAAQS is not required as part of the review of application #12-0101 and DES did not propose any permit conditions in TP-0106 designed to prevent modeled exceedances of the 1-hour SO_2 NAAQS.

In certain situations, DES has asked existing sources to address modeled NAAQS exceedances, even when they have not proposed a project that triggers a modeling review. DES does not routinely make such requests, but only makes them when deemed appropriate. This was the case in the late 1990's when DES requested that Schiller Station accept a fuel oil sulfur limit on the SRCT emission unit to ensure modeled compliance with the NAAQS, even though Schiller

Station was not undertaking a project which triggered modeling at that time. As discussed below, New Hampshire is in the process of addressing SO_2 emissions from Schiller Station, and other regulated stationary sources, with respect to the 2010 primary 1-hour SO_2 NAAQS as part of its State Implementation Plan requirements for the implementation of this new standard. Since SO_2 emissions from Schiller Station relative to the new 1-hour SO_2 NAAQS will be addressed via these other methods, DES is not attempting to address them as part of the evaluation of application #12-0101.

1-hour SO_2 NAAQS implementation

The Sierra Club referenced Section 110 of the Clean Air Act, which requires states to adopt regulations "prohibiting...any source or other type of emission activity within the State from emitting any air pollutant in amounts which will...contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard". DES is aware of this requirement and, in fact, it is incorporated into New Hampshire's regulations at Env-A 615.01, *Special Emission Limitations*, as follows:

> Env-A 615.01 *Special Emission Limitations*. The department shall apply special emission limits to a stationary source to ensure that its air quality impacts on adjacent states shall not interfere with the measures taken in those states to prevent significant deterioration of air quality and shall not prevent the attainment or maintenance of the NAAQS in those states. Significant deterioration shall be determined using the procedures found in 40 CFR 51, Appendix W.

The emission limitations being established in Temporary Permit TP-0106 as a result of review of application #12-0101 are not intended to address the above noted requirement relative to the new 1-hr SO_2 NAAQS. DES is in the process of addressing its obligations relative to the 1-hr SO_2 NAAQS using other measures as described below.

With the promulgation of the 2010 primary 1-hour SO_2 NAAQS, a series of analyses is required for a state to determine its attainment status with respect to the new standard. It also established deadlines for states to develop plans to continue to comply with and/or attain the new standard. One of the first steps is for States to submit proposed attainment designations to EPA for their review and approval. In a July 6, 2011 letter from Governor John Lynch to the EPA, New Hampshire recommended that EPA designate most of the state as unclassifiable for the 1-hour SO_2 NAAQS with the exception of a nonattainment area in the central part of the state surrounding the Pembroke, New Hampshire ambient air monitor station.

In the promulgation of this new standard, EPA has indicated that it will use air dispersion modeling analyses, in conjunction with ambient air monitoring data, to evaluate a state's attainment status. Historically, a state's attainment status with respect to a NAAQS has been determined using ambient air quality monitoring data only. EPA is still developing the implementation guidance of this new standard through a stakeholder process.

DES, Sierra Club, and many other interested parties have been involved in a EPA's stakeholder process to provide input to EPA regarding the use of ambient air dispersion modeling analyses in evaluating a state's attainment of the new 1-hour SO_2 NAAQS. At this time, EPA has not

finalized its guidance or rules on the methods and extent to which modeling will be used in the implementation of the new standard. Once EPA's implementation guidance is complete, New Hampshire will finalize its planning processes.

This entire process has just begun and the form, extent, and timing of attainment designations, attainment plans, and, ultimately, emission limitations on existing sources relative to the 1-hour SO_2 NAAQS cannot be predicted at this time. New Hampshire's 1-hour SO_2 attainment evaluation and plan will also address any potential cross-state issues as required by Env-A 615.01 referenced above. DES remains actively committed to the process and will proceed carefully, deliberately, and with the appropriate opportunity for public participation.

Comment:

C. NH DES Must Also Address the Expired Title V Permit Governing Schiller Station

DES is aware that Schiller Station's Title V Operating Permit has expired and that Schiller Station is operating under the application shield provisions contained in Env-A 609.08, *Application Shield: Title V Operating Permits.* DES is also aware of the provision contained in 40 Code of Federal Regulations (CFR) Part 70 requiring permitting authorities take final action on applications for Title V Operating Permits within 18-months of receiving a complete application. This requirement is incorporated into New Hampshire's permitting regulations at Env-A 609.13, *Final Action.* Env-A 609.13(b)(1) requires that DES take final action on an application for a Title V Operating Permit within 18-months of the date on which the department deems an application complete. The application for renewal of Schiller Station's Title V Operating Permit was deemed complete on November 4, 2011. Therefore, DES is required to take final action on the application by May 4, 2013. DES intends to meet this deadline.

As noted by Sierra Club, the current Title V Operating Permit does not include the emission limits that are the subject of this Temporary Permit (TP-0106). DES intends to incorporate these limits into Schiller Station's Title V Operating Permit renewal. However, as noted in the application review summary, DES cannot incorporate such emission limits into a Title V Operating Permit without first establishing them in a Temporary Permit. Therefore, establishing these limits in the Temporary Permit (TP-0106) is a key step which must occur prior to their eventual inclusion in the facility's Title V Operating Permit. DES recognizes that there has been a delay in establishing these limits in a Temporary Permit. To remedy this situation, DES is now undertaking this permitting process to correctly establish these limitations and subsequently incorporate them into the facility's Title V Operating Permit renewal.

Findings of Fact

DES has based its decision with respect to the application for a Temporary Permit for PSNH Schiller Station on the following findings of fact:

1. PSNH filed an application for a Temporary Permit in accordance with the requirements of Env-A 607, *Temporary Permits.*
2. DES reviewed the application and published a draft decision to issue a Temporary Permit. In addition, DES considered public comments submitted in writing during

the public comment period. Based on its review and consideration of all the available information, DES determined that issuance of the Temporary Permit as originally drafted is the appropriate action to establish the emission limits that are the subject of the application.

Director's Decision

After consideration of the Temporary Permit application and all public comments, the application is approved and a Temporary Permit is hereby issued.

OCTOBER 30, 2012

Craig A. Wright
Acting Director
Air Resources Division

Date

Petition for Appeal or Settlement Discussions

Pursuant to New Hampshire Revised Statutes Annotated 125-C:12, III and Env-A 621.10, *Appeals*, any person aggrieved by this action may file a petition for appeal with the Air Resources Council. Please note that recent changes to RSA 21-O:14 allow for filing of either an appeal, or a preliminary notice of appeal and offer to enter into settlement discussions. The changes to RSA 21-O:14 also extend the deadline for filing to 30 days, rather than the 10 days noted in RSA 125-C:12, III and Env-A 621.10. Therefore, any person aggrieved by this action may file either a petition for appeal, or a preliminary notice of appeal and offer to enter into settlement discussions, which must be received within 30 days of the date above. Such appeal or notice and 15 copies shall be filed in accordance with the provisions of Env-AC 200, *Procedural Rules* and forwarded to the Air Resources Council at the address below:

Air Resources Council
Attn: Appeals Clerk
c/o DES, Legal Unit
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

cc: City of Portsmouth
Public Commenters
Donald Dahl, EPA Region I

EXHIBIT 7

Schiller Station

Portsmouth, New Hampshire

Sierra Club Evaluation of Compliance with 1-hour SO_2 NAAQS

July 24, 2013

Conducted by:

Steven Klafka, P.E., BCEE

Wingra Engineering, S.C.

Madison, Wisconsin

1. Introduction

The Sierra Club prepared an air modeling impact analysis to help USEPA, state and local air agencies identify facilities that are likely causing violations of the 1-hour sulfur dioxide (SO_2) national ambient air quality standard (NAAQS). This document describes the results and procedures for an evaluation conducted for the Schiller Station located in Portsmouth, New Hampshire.

The dispersion modeling analysis predicted ambient air concentrations for comparison with the one hour SO_2 NAAQS. The modeling was performed using the most recent version of AERMOD, AERMET, and AERMINUTE, with data provided to the Sierra Club by regulatory air agencies and through other publicly-available sources as documented below. The analysis was conducted in adherence to all available USEPA guidance for evaluating source impacts on attainment of the 1-hour SO_2 NAAQS via aerial dispersion modeling, including the AERMOD Implementation Guide; USEPA's Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010; modeling guidance promulgated by USEPA in Appendix W to 40 CFR Part 51; and, USEPA's March 2011 Modeling Guidance for SO_2 NAAQS Designations.[1]

2. Compliance with the 1-hour SO_2 NAAQS

2.1 1-hour SO_2 NAAQS

The 1-hour SO_2 NAAQS takes the form of a three-year average of the 99th-percentile of the annual distribution of daily maximum 1-hour concentrations, which cannot exceed 75 ppb.[2] Compliance with this standard was verified using USEPA's AERMOD air dispersion model, which produces air concentrations in units of $\mu g/m^3$. The 1-hour SO_2 NAAQS of 75 ppb equals 196.2 $\mu g/m^3$, and this is the value used for determining whether modeled impacts exceed the NAAQS.[3] The 99th-percentile of the annual distribution of daily maximum 1-hour concentrations corresponds to the fourth-highest value at each receptor for a given year.

2.2 Modeling Results

Modeling results for Schiller Station are summarized in Table 1. It was determined that based on either: 1) currently permitted emissions, 2) historical maximum emissions, or 3) hourly actual emissions, the Schiller Station is estimated to create downwind SO_2 concentrations which exceed the 1-hour NAAQS.

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[1] http://www.epa.gov/scram001/so2_modeling_guidance.htm

[2] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010.

[3] The ppb to $\mu g/m^3$ conversion is found in the source code to AERMOD v. 12345, subroutine Modules. The conversion calculation is 75/0.3823 = 196.2 $\mu g/m^3$.

Schiller Station is located in New Hampshire immediately adjacent to the state boundary with Maine. Table 1 presents the maximum predicted concentrations occurring: 1) anywhere in the modeling domain, and 2) only for locations within the State of Maine.

Table 1 presents the modeling results for each of the evaluated emission rates. These rates include the allowable, maximum and actual. "Allowable" is the peak emission rate from each unit as approved by the current air quality operating permit for the facility. "Maximum" is the highest combined emission rate from all units any single hour as measured during 2010. "Actual" is the measured actual emission rate for each hour from January 1, 2008 to March 31, 2013. Table 1 provides the SO_2 emission rate modeled for Units 4 and 6.

To improve the accuracy of the modeling analysis, the actual hourly emissions also incorporated the actual hourly exit velocity for the exhaust gases from the boiler stacks. Modeling analyses typically rely on a fixed exit velocity which occurs during peak boiler heat input and emissions. For this analysis, the actual hourly exit velocity was estimated using the exit velocity at peak heat input and a ratio of the actual heat input divided by the peak heat input.

To improve the accuracy of the modeling analysis, it was conducted using meteorological or weather data from Skyhaven International Airport in Rochester, New Hampshire located 20 miles north of Schiller Station instead of using weather data from Portsmouth International Airport at Pease in Portsmouth, New Hampshire located 2 miles west of Schiller Station. While the Portsmouth airport is located closer to Schiller Station, the weather measurements are incomplete. Its weather data from January 1, 2006 to March 31, 2013 have approximately 10.25% calm periods and 4.13% missing periods, which are both ignored by AERMOD in a modeling analysis, and 2.30% periods with low winds (i.e. less than 1.5 meters per second), which typically cause higher air pollutant concentrations. Skyhaven provides more complete weather data and a more accurate modeling analysis. Unlike those at Portsmouth, wind measurements at Skyhaven include one-minute wind speed and direction. This allows the use of the AERMINUTE program to replace calms and missing periods with actual weather measurements, and incorporate low wind speeds. Weather data from Skyhaven have approximately 2.66% calm periods, 1.02% missing periods, and 24.65% periods with low winds.

It should be noted that the modeling results presented in Table 1 do not include any consideration of existing background concentrations of SO_2. As a result, the modeling analysis underestimates the impact of Schiller Station with respect to compliance with the 1-hour NAAQS for SO_2.

Based on the modeling results, emission reductions from current rates considered necessary to achieve compliance with the 1-hour NAAQS were calculated and presented in Table 2. These reductions are based on the highest modeling results using allowable emissions which occurred during the 3-year period of 2007-2009.

Table 1 - SO_2 Modeling Results for Schiller Station Modeling Analysis

3-Year Time Period	Emissions Type [4, 5, 6]	Average Emissions from Each Unit (lbs/hr)	Maximum Impact All Locations ($\mu g/m^3$)	Maximum Impact In Maine ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
2006 – 2008	Allowable	1,377.6	745.9	745.9	196.2
	Maximum	1,129.1	611.4	611.4	
	Actual SO_2 & Velocity	508.2	338.0	338.0	
2007 – 2009	Allowable	1,377.6	824.1	824.1	
	Maximum	1,129.1	676.0	676.0	
	Actual SO_2 & Velocity	466.8	332.7	332.7	
2008 – 2010	Allowable	1,377.6	767.7	767.7	
	Maximum	1,129.1	629.4	629.4	
	Actual SO_2 & Velocity	448.1	276.2	276.2	
2009 – 2011	Allowable	1,377.6	794.8	794.8	
	Maximum	1,129.1	651.1	651.1	
	Actual SO_2 & Velocity	323.7	204.2	204.2	
2010 – 2012	Allowable	1,377.6	763.9	763.9	
	Maximum	1,129.1	625.3	625.3	
	Actual SO_2 & Velocity	215.3	168.8	168.8	
4/2010 – 3/2013	Allowable	1,377.6	746.8	746.8	
	Maximum	1,129.1	611.2	611.2	
	Actual SO_2 & Velocity	211.1	192.9	192.9	

Table 2 - Required Emission Reductions for Compliance with 1-hour SO_2 NAAQS

Maximum Impact All Locations 99th Percentile 1-hour Daily Max ($\mu g/m^3$)	Acceptable Impact (NAAQS) 99th Percentile 1-hour Daily Max ($\mu g/m^3$)	Required Total Facility Reduction Based on Allowable Emissions (%)	Required Total Facility Emission Rate (lbs/hr)	Required Total Facility 1-hour Average Emission Rate (lbs/mmbtu)
824.1	196.2	76.2	656.0	0.57

[4] Allowable emissions are based on the calendar day average limitation in Table 2 of the Temporary Permit TP-0106 issued October 30, 2012 by NHDES. Unit 4 and 6 allowable emissions are 2.4 lbs per mmbtu.

[5] Maximum emissions are based on measured hourly rates reported for 2010 in USEPA, Clean Air Markets - Data and Maps.

[6] Actual emissions are the emissions measured each hour during the 2006 to 2013 period as reported in USEPA, Clean Air Markets - Data and Maps.

2.3 Conservative Modeling Assumptions

A dispersion modeling analysis requires the selection of numerous parameters which affect the predicted concentrations. For the enclosed analysis, several parameters were selected which under-predict facility impacts.

Assumptions used in this modeling analysis which likely under-estimate concentrations include the following:

- Allowable emissions are based on a limitation with an averaging period which is greater than the 1-hour average used for the SO_2 air quality standard. Emissions and impacts during any 1-hour period may be higher than assumed for the modeling analysis.
- No consideration of off-site sources. These other sources of SO_2 will increase the predicted impacts.
- No consideration of building or structure downwash. These downwash effects typically increase predicted concentrations near the facility.
- No consideration of background concentrations of SO_2. The predicted facility impact is typically combined with a background concentration and the total is compared with the NAAQS to determine the required emissions reduction.

3. Modeling Methodology

3.1 Air Dispersion Model

The modeling analysis used USEPA's AERMOD program, version 12345. AERMOD, as available from the Support Center for Regulatory Atmospheric Modeling (SCRAM) website, was used in conjunction with a third-party modeling software program, *AERMOD View*, sold by Lakes Environmental Software.

3.2 Control Options

The AERMOD model was run with the following control options:

- 1-hour average air concentrations
- Regulatory defaults
- Flagpole receptors

To reflect a representative inhalation level, a flagpole height of 1.5 meters was used for all modeled receptors. This parameter was added to the receptor file when running AERMAP, as described in Section 4.4.

An evaluation was conducted to determine if the modeled facility was located in a rural or urban setting using USEPA's methodology outlined in Section 7.2.3 of the Guideline on Air Quality

Models.[7] For urban sources, the URBANOPT option is used in conjunction with the urban population from an appropriate nearby city and a default surface roughness of 1.0 meter. Methods described in Section 4.1 were used to determine whether rural or urban dispersion coefficients were appropriate for the modeling analysis.

3.3 Output Options

The AERMOD analysis was based on recent meteorological data from 2006 to 2013. The modeling analyses used six 3-years sets of sequential meteorological data from this period including: 2006-08, 2007-09, 2008-10, 2009-11, 2010-12, and April/2010-March/2013. Consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations, AERMOD provided a table of fourth-high 1-hour SO_2 impacts concentrations for each 3-year period consistent with the form of the 1-hour SO_2 NAAQS.[8] Please refer to Table 1 for the modeling results.

4. Model Inputs

4.1 Geographical Inputs

The "ground floor" of all air dispersion modeling analyses is establishing a coordinate system for identifying the geographical location of emission sources and receptors. These geographical locations are used to determine local characteristics (such as land use and elevation), and also to ascertain source to receptor distances and relationships.

The Universal Transverse Mercator (UTM) NAD83 coordinate system was used for identifying the easting (x) and northing (y) coordinates of the modeled sources and receptors. Stack locations were obtained from facility permits and prior modeling files provided by the state regulatory agency. The stack locations were then verified using aerial photographs.

The facility was evaluated to determine if it should be modeled using the rural or urban dispersion coefficient option in AERMOD. A GIS was used to determine whether rural or urban dispersion coefficients apply to a site. Land use within a three-kilometer radius circle surrounding the facility was considered. USEPA guidance states that urban dispersion coefficients are used if more than 50% of the area within 3 kilometers has urban land uses. Otherwise, rural dispersion coefficients are appropriate.[9]

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[7] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005.
[8] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 24-26.
[9] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section 7.2.3.

USEPA's AERSURACE model v. 13016 was used to develop the meteorological data for the modeling analysis. This model was also used to evaluate surrounding land use within 3 kilometers. Based on the output from the AERSURFACE, approximately 44.1% of surrounding land use around Schiller Station was of urban land use types including Type 21 – Low Intensity Residential, Type 22 – High Intensity Residential and Type 23 – Commercial / Industrial / Transportation.

This is less than the 50% value considered appropriate for the use of urban dispersion coefficients. Based on the AERSURFACE analysis, it was concluded that the rural option would be used for the modeling summarized in this report. Please refer to Section 4.5.3 for a discussion of the AERSURFACE analysis.

4.2 Emission Rates and Source Parameters

The modeling analyses only considered SO_2 emissions from the facility. Off-site sources were not considered. Concentrations were predicted for three scenarios shown in Table 2:

1) approved or allowable emissions based on permits issued by the regulatory agency,

2) maximum hourly emission rates were obtained from the measured actual hourly SO_2 emissions contained in USEPA's Clean Air Markets Database. To assure realistic maximum emission rates were used, emissions from all units at the facility were combined and the hour with the maximum total facility emissions was used to determine the actual emissions,

3) actual hourly emission rates were obtained from the measured actual hourly SO_2 emissions contained in USEPA's Clean Air Markets Database. Each hour of the modeling analysis was combined with the actual emissions during that hour. The actual emissions for each hour were included in the AERMOD analysis by using an Hourly Emission Rate file. To improve the accuracy of the modeling analysis, the actual hourly also used the actual hourly exit velocity for the exhaust gases exiting the boiler stacks. Modeling analyses typically rely on a fixed exit velocity occurring during peak boiler heat input and emissions. For this analysis, the actual hourly exit velocity was estimated using the exit velocity at peak heat input and a ratio of the actual heat input divided by the peak heat input. The exit velocities for each hour were included in the AERMOD analysis by using an Hourly Emission Rate file.

Stack parameters and emissions used for the modeling analysis are summarized in Table 4.

Table 4 – Facility Stack Parameters and Emissions [10, 11]

Stack	Unit 4	Unit 6
Description	354822	354841
X Coord. [m]	4773170	4773144
Y Coord. [m]	7.95	6.6
Base Elevation [m]	68.89	68.89
Release Height [m]	450	450
Gas Exit Temperature [°K]	21.555	21.555
Gas Exit Velocity [m/s]	2.44	2.44
Inside Diameter [m]	209.7	209.7
Allowable Emission Rate [g/s]	209.7	209.7
Maximum Emission Rate [g/s]	142.3	142.3
Actual Emission Rate [g/s]	Refer to the Hourly Emission Rate File	

The above stack parameters and emissions were obtained from regulatory agency documents and databases identified in Section 2.3.

The analyses using the allowable and maximum emission rates were conducted based on 100% operating load using maximum exhaust flow rates and emission rates. For these emission rates, operation at less than full capacity loads was not considered. This assumption tends to under-predict impacts since stack parameters such as exit flow rate and temperature are typically lower at less than full load, reducing pollutant dispersion and increasing predicted air quality impacts.

As previously noted, the analysis using the actual emission rates varied the boiler stack exit velocity based on the boiler heat input for the given hour. The boiler stack exit temperature was maintained constant at the same level as used for the allowable and maximum emission rates.

Stack location, height and diameter were verified using aerial photographs, and flue gas flow rate and temperature were verified using combustion calculations.

4.3 Building Dimensions and GEP

This modeling analysis includes no consideration of building or structure downwash. These downwash effects typically increase predicted concentrations near the facility.

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[10] NHDES, Temporary Permit TP-0106, October 30, 2012. AERMOD modeling files provided by NHDES for the 2006 NWPP analysis for the PSNH Schiller Wood Fired Boiler.

[11] To improve the accuracy of the modeling analysis, the actual hourly emissions also used the actual hourly exit velocity for the exhaust gases exiting the stack for each of the two boilers.

4.4 Receptors

For Schiller Station, three receptor grids were employed:

1. A 100-meter Cartesian receptor grid centered on Schiller Station and extending out 5 kilometers.
2. A 500-meter Cartesian receptor grid centered on Schiller Station and extending out 10 kilometers.
3. A 1,000-meter Cartesian receptor grid centered on Schiller Station and extending out 50 kilometers. 50 kilometers is the maximum distance accepted by USEPA for the use of the AERMOD dispersion model.[12]

A flagpole height of 1.5 meters was used for all these receptors.

Elevations from stacks and receptors were obtained from National Elevation Dataset (NED) GeoTiff data. GeoTiff is a binary file that includes data descriptors and geo-referencing information necessary for extracting terrain elevations. These elevations were extracted from 1 arc-second (30 meter) resolution NED files. The USEPA software program AERMAP v. 11103 is used for these tasks.

4.5 Meteorological Data

Recent meteorological data for the 2006 to 2013 period were prepared using the USEPA's program AERMET which creates the model-ready surface and profile data files required by AERMOD. Required data inputs to AERMET included surface meteorological measurements, twice-daily soundings of upper air measurements, and the micrometeorological parameters surface roughness, albedo, and Bowen ratio.

The modeling analysis was conducted using meteorological or weather data from Skyhaven International Airport in Rochester, New Hampshire located 20 miles north of Schiller Station. For the Skyhaven International Airport, one-minute ASOS data were available so USEPA methods were used to reduce calm and missing hours.[13] The USEPA software program AERMINUTE v. 11325 is used for these tasks.

This section discusses how the meteorological data was prepared for use in the 1-hour SO_2 NAAQS modeling analyses. The USEPA software program AERMET v. 12345 is used for these tasks.

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[12] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, Section A.1.(1), November 9, 2005.

[13] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, p. 19.

4.5.1 Surface Meteorology

Surface meteorology was obtained for Skyhaven International Airport in Rochester, New Hampshire located 20 miles north of Schiller Station. Integrated Surface Hourly (ISH) data were obtained from the National Climatic Data Center (NCDC). The ISH surface data was processed through AERMET Stage 1, which performs data extraction and quality control checks.

4.5.2 Upper Air Data

Upper-air data are collected by a "weather balloon" that is released twice per day at selected locations. As the balloon is released, it rises through the atmosphere, and radios the data back to the surface. The measuring and transmitting device is known as either a radiosonde, or rawindsonde. Data collected and radioed back include: air pressure, height, temperature, dew point, wind speed, and wind direction. The upper air data were processed through AERMET Stage 1, which performs data extraction and quality control checks.

Concurrent 2006 through 2013 upper air data from twice-daily radiosonde measurements obtained at the most representative location were used. This location was the Gray, Maine measurement station. These data are in Forecast Systems Laboratory (FSL) format and were downloaded in ASCII text format from NOAA's FSL website.[14] All reporting levels were downloaded and processed with AERMET.

4.5.3 AERSURFACE

AERSURFACE is a program that extracts surface roughness, albedo, and daytime Bowen ratio for an area surrounding a given location. AERSURFACE uses land use and land cover (LULC) data in the U.S. Geological Survey's 1992 National Land Cover Dataset to extract the necessary micrometeorological data. LULC data was used for processing meteorological data sets used as input to AERMOD.

AERSURFACE v. 13016 was used to develop surface roughness, albedo, and daytime Bowen ratio values in a region surrounding the meteorological data collection site. AERSURFACE was used to develop surface roughness in a one kilometer radius surrounding the data collection site. Bowen ratio and albedo was developed for a 10 kilometer by 10 kilometer area centered on the meteorological data collection site. These micrometeorological data were processed for seasonal periods using 30-degree sectors. Seasonal moisture conditions were considered average and for both airports it was conclude there would be three months with continuous snow cover.

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[14] Available at: http://esrl.noaa.gov/raobs/

4.5.4 Data Review

Missing meteorological data were not filled as the data file met USEPA's 90% data completeness requirement.[15] The AERMOD output file shows there were 1.0% missing data for Skyhaven International Airport.

5. Background SO_2 Concentrations

No background SO_2 concentrations were considered for this modeling analysis.

6. Reporting

All files from the programs used for this modeling analysis are available to regulatory agencies. These include analyses prepared with AERSURFACE, AERMET, AERMAP, and AERMOD.

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[15] USEPA, Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000, Section 5.3.2, pp. 5-4 to 5-5.

Attachment A - Impacts in Eliot, Maine
Schiller Station – Portsmouth, NH
Modeling Analysis Comparison with the 1-hour NAAQS for SO_2
(July 24, 2013)

Weather Data	3-Year Time Period	Emissions Type	Average Emissions from Each Unit (lbs/hr)	Maximum Impact All Locations ($\mu g/m^3$)	Maximum Impact in Maine ($\mu g/m^3$)	Maximum Impact in Eliot, Maine ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Rochester NH	2006 – 2008	Allowable	1,377.6	745.9	745.9	402.6	196.2
		Maximum	1,129.1	611.4	611.4	329.9	
		Actual SO_2 & Velocity	508.2	338.0	338.0	193.4	
Rochester NH	2007 – 2009	Allowable	1,377.6	824.1	824.1	403.6	
		Maximum	1,129.1	676.0	676.0	318.1	
		Actual SO_2 & Velocity	466.8	332.7	332.7	192.3	
Rochester NH	2008 – 2010	Allowable	1,377.6	767.7	767.7	399.6	
		Maximum	1,129.1	629.4	629.4	327.2	
		Actual SO_2 & Velocity	448.1	276.2	276.2	196.2	
Rochester NH	2009 – 2011	Allowable	1,377.6	794.8	794.8	404.6	
		Maximum	1,129.1	651.1	651.1	331.8	
		Actual SO_2 & Velocity	323.7	204.2	204.2	172.8	
Rochester NH	2010 – 2012	Allowable	1,377.6	763.9	763.9	403.1	
		Maximum	1,129.1	625.3	625.3	331.0	
		Actual SO_2 & Velocity	215.3	168.8	168.8	168.8	
Rochester NH	4/2010 – 3/2013	Allowable	1,377.6	746.8	746.8	403.1	
		Maximum	1,129.1	611.2	611.2	331.0	
		Actual SO_2 & Velocity	211.1	192.9	192.9	167.3	

2012 Pierce Island Air Monitor Data

Data taken from U.S. EPA's Air Data Database: http://www.epa.gov/airdata/ad_maps.html

Sulfur Dioxide Standard is 75 parts per billion (ppb)

State Code	County Code	Site Number	Parameter Code	POC	Latitude	Longitude	Datum	Parameter Name	Duration Description	Year	Units of Measure	Exceptional Data Type
33	15	14	44201	1	43.075333	-70.748	WGS84	Ozone	1 HOUR	2012	Parts per million	None
33	15	14	42401	1	43.075333	-70.748	WGS84	Sulfur dioxide	1 HOUR	2012	Parts per billion	None
33	15	14	61101	1	43.075333	-70.748	WGS84	Wind Speed - Scalar	1 HOUR	2012	Knots	None
33	15	14	62101	1	43.075333	-70.748	WGS84	Outdoor Temperature	1 HOUR	2012	Degrees Fahrenheit	None
33	15	14	88101	3	43.075333	-70.748	WGS84	PM2.5 - Local Conditions	1 HOUR	2012	Micrograms/cubic meter (LC)	None
33	15	14	81102	2	43.075333	-70.748	WGS84	PM10 Total 0-10um STP	24 HOUR	2012	Micrograms/cubic meter (25 C)	None
33	15	14	81102	1	43.075333	-70.748	WGS84	PM10 Total 0-10um STP	24 HOUR	2012	Micrograms/cubic meter (25 C)	None
33	15	14	68105	1	43.075333	-70.748	WGS84	Ambient Temperature	24 HOUR	2012	Degrees Centigrade	None
33	15	14	68103	1	43.075333	-70.748	WGS84	Ambient Min Temperature	24 HOUR	2012	Degrees Centigrade	None
33	15	14	68104	1	43.075333	-70.748	WGS84	Ambient Max Temperature	24 HOUR	2012	Degrees Centigrade	None
33	15	14	68106	1	43.075333	-70.748	WGS84	Sample Min Baro Pressure	24 HOUR	2012	Millimeters (mercury)	None
33	15	14	68108	1	43.075333	-70.748	WGS84	Sample Baro Pressure	24 HOUR	2012	Millimeters (mercury)	None
33	15	14	68107	1	43.075333	-70.748	WGS84	Sample Max Baro Pressure	24 HOUR	2012	Millimeters (mercury)	None
33	15	14	68102	1	43.075333	-70.748	WGS84	Sample Volume	24 HOUR	2012	Cubic meter	None
33	15	14	88101	1	43.075333	-70.748	WGS84	PM2.5 - Local Conditions	24 HOUR	2012	Micrograms/cubic meter (LC)	None
33	15	14	68109	1	43.075333	-70.748	WGS84	Elapsed Sample Time	24 HOUR	2012	Minutes	None
33	15	14	68101	1	43.075333	-70.748	WGS84	Sample Flow Rate- CV	24 HOUR	2012	Percent	None
33	15	14	88101	3	43.075333	-70.748	WGS84	PM2.5 - Local Conditions	24-HR BLK AVG	2012	Micrograms/cubic meter (LC)	None
33	15	14	42401	2	43.075333	-70.748	WGS84	Sulfur dioxide	5 MINUTE	2012	Parts per billion	None
33	15	14	42401	1	43.075333	-70.748	WGS84	Sulfur dioxide	24-HR BLK AVG	2012	Parts per billion	None
33	15	14	42401	1	43.075333	-70.748	WGS84	Sulfur dioxide	3-HR BLK AVG	2012	Parts per billion	None
33	15	14	44201	1	43.075333	-70.748	WGS84	Ozone	8-HR RUN AVG BEGIN HOUR	2012	Parts per million	None
33	15	14	61106	1	43.075333	-70.748	WGS84	Std Dev Hz Wind Direction	1 HOUR	2012	Degrees Compass	None
33	15	14	61102	1	43.075333	-70.748	WGS84	Wind Direction - Scalar	1 HOUR	2012	Degrees Compass	None

Observation Count	Observation Percent	Primary Exceedance Count	Secdary Exceedance Count	Valid Day Count	Required Day Count	Exceptional Data Count
4298	49	0	0	89	183	0
4298	49	0	.	181	366	0
4301	49	.	.	178	366	0
4358	50	.	.	181	366	0
3538	40	.	.	155	366	0
29	48	0	0	29	61	0
29	48	0	0	29	61	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
15	50	.	.	15	30	0
15	25	.	.	15	61	0
15	25	.	.	15	61	0
147	40	.	.	147	366	0
51448	49	.	.	180	366	0
181	49	0	.	181	366	0
1398	48	.	0	181	366	0
4329	49	0	0	89	183	0
4356	50	.	.	181	366	0
4339	49	.	.	180	366	0

Certification Indicator	Null Data Count	Half MDL Sub Count	Nonregulatory Arithmetic Mean	Arithmetic Mean
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	70	107	0.029743	0.04681
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	70	0	.	2.99613
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	67	10	.	5.45757
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	10	0	.	49.00229
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	830	0	.	7.19553
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	1	0	.	12.72414
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	1	0	.	12.41379
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	9.39333
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	4.30667
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	14.82667
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	756.73333
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	760.06667
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	763.86667
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	24
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	7.23333
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	1440
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	0.48667
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	7.12721
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	968	0	.	0.52329
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	0.51823
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	.	0.50715
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	0	0	0.031285	0.04296
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	12	8	.	19.51832
Certification is not required, or the state has not certified to the EPA that the underlying raw data is complete and accurate.	29	0	.	216.19636

Arithmetic Standard Dev	Weighted Arithmetic Mean	Minimum Value	Nonreg First Maximum Value	Nonreg First Maximum DateTime	First Maximum Value	First Maximum DateTime	Second Maximum Value
0.01083	.	0.01	0.1013	13JUL2012:14:00:00	0.092	29JUN2012:15:00:00	0.075
4.9412	.	-0.7	.	.	33.5	18JAN2012:20:00:00	29.4
3.49806	.	0	.	.	26	23APR2012:02:00:00	24.1
15.05232	.	7	.	.	94	20JUN2012:13:00:00	94
5.524	.	-3	.	.	40.3	07JAN2012:19:00:00	39.2
6.00533	12.73095	5	.	.	36	15FEB2012:00:00:00	23
5.66643	12.41667	6	.	.	36	15FEB2012:00:00:00	19
8.4054	.	-5.8	.	.	22.2	22MAR2012:00:00:00	18.5
8.27824	.	-11.6	.	.	15.6	26JUN2012:00:00:00	14.2
9.33912	.	0	.	.	31.7	22MAR2012:00:00:00	28.3
7.106	.	745	.	.	769	22JAN2012:00:00:00	765
7.47822	.	748	.	.	773	22JAN2012:00:00:00	769
7.2493	.	751	.	.	776	22JAN2012:00:00:00	773
0	.	24	.	.	24	10JAN2012:00:00:00	24
5.19267	7.35089	3.2	.	.	24.3	15FEB2012:00:00:00	12
0	.	1440	.	.	1440	10JAN2012:00:00:00	1440
0.06399	.	0.4	.	.	0.6	09MAY2012:00:00:00	0.6
3.99655	7.02863	-0.1	.	.	25	15FEB2012:00:00:00	21
2.14038	.	-2	.	.	65.4	18JAN2012:19:25:00	51.9
1.0091	.	-0.9	.	.	6	15JAN2012:00:00:00	5.8
1.50531	.	-1.1	.	.	21.9	18JAN2012:20:00:00	13
0.00946	.	0.004	0.073	29JUN2012:11:00:00	0.073	29JUN2012:11:00:00	0.07
8.76354	.	0.5	.	.	71.1	22JUN2012:04:00:00	70.4
93.60946	.	0	.	.	359	21JAN2012:22:00:00	359

Second Maximum DateTime	Third Maximum Value	Third Maximum DateTime	Fourth Maximum Value	Fourth Maximum DateTime	50th Percentile	75th Percentile	90th Percentile	95th Percentile	98th Percentile
16APR2012:13:00:00	0.074	13MAY2012:18:00:00	0.071	20APR2012:13:00:00	0.048	0.053	0.059	0.068	0.075
15JAN2012:09:00:00	21.1	16JAN2012:09:00:00	19.5	27MAR2012:20:00:00	1.1	3.1	8.1	12.3	19.5
23APR2012:01:00:00	23.8	23APR2012:03:00:00	22	23APR2012:00:00:00	4.7	7.3	10.4	12.3	14.7
20JUN2012:15:00:00	94	20JUN2012:16:00:00	93	20JUN2012:14:00:00	48	60	69	73	80
29JUN2012:17:00:00	36.4	16FEB2012:10:00:00	36.1	16FEB2012:08:00:00	6.2	9.5	14.4	17.8	21.8
15APR2012:00:00:00	18	27MAY2012:00:00:00	17	28MAR2012:00:00:00	12	14	18	23	36
09APR2012:00:00:00	17	15APR2012:00:00:00	17	27MAY2012:00:00:00	12	15	17	19	36
14JUN2012:00:00:00	17.9	15APR2012:00:00:00	17.6	26JUN2012:00:00:00	9.6	17.6	18.5	22.2	22.2
22MAR2012:00:00:00	12.3	02JUN2012:00:00:00	12.3	14JUN2012:00:00:00	3.4	12.3	14.2	15.6	15.6
15APR2012:00:00:00	25.6	14JUN2012:00:00:00	23.1	21MAY2012:00:00:00	15	23.1	28.3	31.7	31.7
03FEB2012:00:00:00	763	10MAR2012:00:00:00	762	15FEB2012:00:00:00	758	762	765	769	769
10MAR2012:00:00:00	767	03FEB2012:00:00:00	766	27FEB2012:00:00:00	761	766	769	773	773
10MAR2012:00:00:00	772	27FEB2012:00:00:00	770	03FEB2012:00:00:00	765	770	773	776	776
22JAN2012:00:00:00	24	03FEB2012:00:00:00	24	15FEB2012:00:00:00	24	24	24	24	24
15APR2012:00:00:00	7.7	22MAR2012:00:00:00	7.1	22JAN2012:00:00:00	6.1	7.1	12	24.3	24.3
22JAN2012:00:00:00	1440	03FEB2012:00:00:00	1440	15FEB2012:00:00:00	1440	1440	1440	1440	1440
21MAY2012:00:00:00	0.5	22JAN2012:00:00:00	0.5	03FEB2012:00:00:00	0.5	0.5	0.6	0.6	0.6
16FEB2012:00:00:00	18.6	07JAN2012:00:00:00	16.7	01FEB2012:00:00:00	6.4	9.1	12.3	13.9	18.6
18JAN2012:20:50:00	51.6	16JAN2012:09:15:00	51.1	18JAN2012:20:55:00	0.1	0.5	1.4	2.6	5.6
18JAN2012:00:00:00	4.3	03JAN2012:00:00:00	4	15FEB2012:00:00:00	0.3	0.7	1.5	2.3	4
14JAN2012:20:00:00	13	15JAN2012:11:00:00	12.2	18JAN2012:23:00:00	0.2	0.5	1.6	2.7	5
16APR2012:11:00:00	0.066	13MAY2012:13:00:00	0.064	20APR2012:12:00:00	0.045	0.049	0.055	0.061	0.07
11MAY2012:21:00:00	70.1	29JUN2012:04:00:00	65.5	12MAY2012:21:00:00	16.7	22	30	37.8	47.9
21JAN2012:23:00:00	359	10MAR2012:06:00:00	358	21JAN2012:21:00:00	241	296	322	335	347

99th Percentile	Method Count	Tribe Name	State Name	County Name	City Name	Local Site Name	Address	MSA or CBSA Name	Data Source
0.092	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
29.4	2		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
16.2	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
84	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
26.1	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
36	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
36	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
22.2	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
15.6	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
31.7	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
769	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
773	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
776	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
24	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
24.3	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
1440	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
0.6	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
21	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
9	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
5.8	2		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
7.7	2		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
0.073	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
53.4	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM
353	1		New Hampshire	Rockingham	Portsmouth	PORTSMOUTH - PEIRCE ISLAND	PORTSMOUTH, PEIRCE ISLAND	Portsmouth-Rochester,NH-ME	AQS via AQSDM